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Labor

29

PARTS 1911 TO 1925

Revised as of July 1, 1989

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PARTS 1911 to 1925

Revised as of July 1, 1989

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Cite this Code: **CFR**

To cite the regulations in this volume use title, part and section number. Thus, **29 CFR 1911.1** *refers to Title 29, Part 1911, section 1.*

Explanation

The Code of Federal Regulations is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. The Code is divided into 50 titles which represent broad areas subject to Federal regulation. Each title is divided into chapters which usually bear the name of the issuing agency. Each chapter is further subdivided into parts covering specific regulatory areas.

ISSUE DATES

Each volume of the Code is revised at least once each calendar year and issued on a quarterly basis approximately as follows:

Title 1 through Title 16..... as of January 1
Title 17 through Title 27..... as of April 1
Title 28 through Title 41..... as of July 1
Title 42 through Title 50..... as of October 1

The appropriate revision date is printed on the cover of each volume.

LEGAL STATUS

The contents of the Federal Register are required to be judicially noticed (44 U.S.C. 1507). The Code of Federal Regulations is prima facie evidence of the text of the original documents (44 U.S.C. 1510).

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The Code of Federal Regulations is kept up to date by the individual issues of the Federal Register. These two publications must be used together to determine the latest version of any given rule.

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The Paperwork Reduction Act of 1980 (Pub. L. 96-511) requires Federal agencies to display an OMB control number with their information collection request. Many agencies have begun publishing numerous OMB control numbers as amendments to existing regulations in the CFR. These OMB numbers are placed as close as possible to the applicable recordkeeping or reporting requirements.

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III). A list of CFR Titles, Chapters, and Parts and an alphabetical list of agencies publishing in the CFR are also included in this volume.

An index to the text of "Title 3—The President" is carried within that volume.

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REPUBLICATION OF MATERIAL

There are no restrictions on the republication of material appearing in the Code of Federal Regulations.

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For a summary, legal interpretation, or other explanation of any regulation in this volume, contact the issuing agency. Inquiries concerning editing procedures and reference assistance with respect to the Code of Federal Regulations may be addressed to the Director, Office of the Federal Register, National Archives and Records Administration, Washington, D.C. 20408 (telephone 202-523-3517). Sales are handled exclusively by the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 (telephone 202-783-3238).

MARTHA L. GIRARD
Acting Director,
Office of the Federal Register.

July 1, 1989.

THIS TITLE

Title 29—LABOR is composed of nine volumes. The parts in these volumes are arranged in the following order: Parts 0–99, Parts 100–499, Parts 500–899, Parts 900–1899, Sections 1901.1–1910.441, Section 1910.1000–End, Parts 1911–1925, Part 1926, and Part 1927 to End. The contents of these volumes represent all current regulations codified under this title as of July 1, 1989.

Subject indexes appear following the occupational safety and health standards (Part 1910), and following the safety and health regulations for: Longshoring (Part 1918), Gear Certification (Part 1919), and Construction (Part 1926).

Redesignation tables appear in the Finding Aids section of certain volumes.

For this volume Jim Wickliffe was Chief Editor. The Code of Federal Regulations publication program is under the direction of Richard L. Claypoole, assisted by Ruth C. Pontius.

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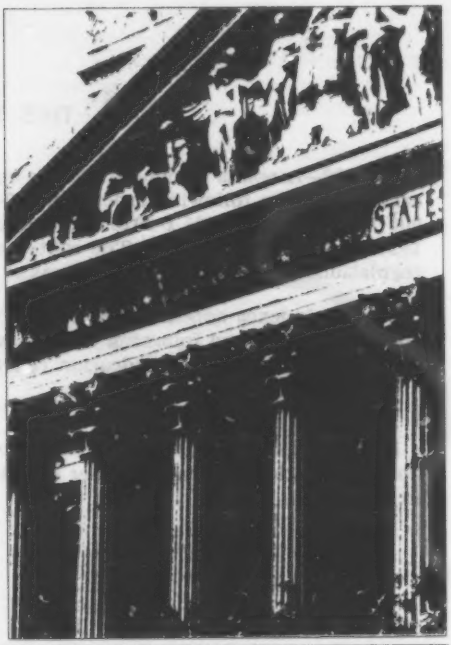

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Title 29—Labor

(This book contains Parts 1911 to 1925)

SUBTITLE B—REGULATIONS RELATING TO LABOR (CONTINUED)

Part

CHAPTER XVII—Occupational Safety and Health Administration, Department of Labor 1911

CROSS REFERENCES: Railroad Retirement Board: See Employees' Benefits, 20 CFR Chapter II.

Social Security Administration, Department of Health and Human Services: See Employees' Benefits, 20 CFR Chapter III.

EDITORIAL NOTE: Other regulations issued by the Department of Labor appear in 20 CFR Chapters I, IV, V, VI, and VII; 41 CFR Chapters 50, 60, and 61; and 48 CFR Chapter 29. For Standards for a Merit System of Personnel Administration: See 5 CFR Part 900, Subpart F.

Subtitle B—Regulations Relating to Labor (Continued)

CHAPTER XVII—OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, DEPARTMENT OF LABOR—(Continued)

(Parts 1911 to 1925)

EDITORIAL NOTES: 1. Nomenclature changes appear at 38 FR 19029, July 17, 1973.

2. Chapter XVII is continued in the volumes containing 29 CFR Part 1926 and 29 CFR Part 1927 to End.

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PART 1911—RULES OF PROCEDURE FOR PROMULGATING, MODIFYING, OR REVOKING OCCUPATIONAL SAFETY OR HEALTH STANDARDS

Sec.

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1911.2 Definitions.
1911.3 Petition for the promulgation, modification, or revocation of a standard.
1911.4 Additional or alternative procedural requirements.
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COMMENCEMENT OF RULEMAKING

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HEARINGS

1911.15 Nature of hearing.
1911.16 Powers of presiding officer.
1911.17 Certification of the record of a hearing.
1911.18 Decision.

AUTHORITY: Secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); secs. 1, 4, Walsh-Healey Public Contracts Act (41 U.S.C. 35, 38); secs. 2, 4, Service Contracts Act of 1965 (41 U.S.C. 351, 353); sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); sec. 41, Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941); sec. 5(j)(2), National Foundation on Arts and Humanities Act (20 U.S.C. 954(j)(2)); 5 U.S.C. 553; Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), or 9–83 (48 FR 35736), as applicable. Sections 1911.12 and 1911.18 also issued under 29 CFR Part 1911.

SOURCE: 36 FR 17507, Sept. 1, 1971, unless otherwise noted.

§ 1911.1 Purpose and scope.

This part sets forth rules of procedure for promulgating, modifying, or revoking occupational safety or health standards under section 6(b) (1), (2), (3), and (4) of the Williams-Steiger Occupational Safety and Health Act of 1970 and under any of the particular statutes listed in § 1911.2(d) which may also cover the employments affected by the standards. The purpose of the rules is to provide for single proceedings in the setting of standards under the several statutes, in order to assure uniformity of the standards to be enforced under the several statutes and in order to avoid needless multiplicity of rulemaking proceedings dealing with the same subjects and issues relating to occupational safety and health standards.

§ 1911.2 Definitions.

As used in this part, unless the context clearly requires otherwise—

(a) "Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health.

(b) "Act" means the Williams-Steiger Occupational Safety and Health Act of 1970 (84 Stat. 1590; 29 U.S.C. 650).

(c) "Standard" means an occupational safety and health standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment, and which is to be promulgated, modified, or revoked in accordance with section 6(b) (1), (2), (3), and (4) of the Act.

(d) "Particular statute" means any of the following statutes of particular application: The Act of June 30, 1936, commonly known as the Walsh-Healey Public Contracts Act (41 U.S.C. 35 et seq.), the Service Contract Act of 1965 (41 U.S.C. 351 et seq.), the Construction Safety Act (40 U.S.C. 333), the Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941), or the National Foundation on Arts and Humanities Act (20 U.S.C. 951 et seq.).

§ 1911.3 Petition for the promulgation, modification, or revocation of a standard.

Any interested person may file with the Assistant Secretary, Occupational Safety and Health Administration, U.S. Department of Labor, Washington, D.C. 20210, a written petition for the promulgation, modification, or revocation of a standard. The petition should include, or be accompanied by, the proposed rule desired and a statement of the reasons therefor and intended effect thereof.

§ 1911.4 Additional or alternative procedural requirements.

Upon reasonable notice to interested persons, the Assistant Secretary may in any particular proceeding prescribe additional or alternative procedural requirements:

(a) In order to expedite the conduct of the proceeding; (b) in order to provide greater procedural protection to interested persons whenever it is found necessary or appropriate to do so; or (c) for any other good cause which may be consistent with the applicable laws.

§ 1911.5 Minor changes in standards.

Section 6(b), when construed in light of the rulemaking provisions of the Administrative Procedure Act (5 U.S.C. 553), is read as permitting the making of minor rules or amendments in which the public is not particularly interested without the notice and public procedure which is otherwise required. Whenever such a minor rule or amendment is adopted, it shall incorporate a finding of good cause to this effect for not providing notice and public procedure.

[37 FR 8664, Apr. 29, 1972]

Commencement of Rulemaking

§ 1911.10 Construction standards.

The Assistant Secretary may promulgate, modify, or revoke a standard applicable to employments in construction work, as defined in § 1910.12(b) of this chapter, in the following manner:

(a) The Assistant Secretary shall consult with the Advisory Committee on Construction Safety and Health, established pursuant to section 107 of the Contract Work Hours and Safety Standards Act, in the formulation of a rule to promulgate, modify, or revoke a standard. The Assistant Secretary shall provide the committee with any proposal of his own or the Secretary of Health, Education, and Welfare, together with all pertinent factual information available to him, including the results of research, demonstrations, and experiments. The committee shall submit to the Assistant Secretary its recommendations regarding the rule to be promulgated within the period prescribed by the Assistant Secretary, which in no event shall be longer than 270 days from the date of initial consultation.

(b) Within 60 days after the submission of the committee's recommendations or after the expiration of the period prescribed for such submissions, whichever date is earlier, the Assistant Secretary, if he determines that a rule should be issued, shall publish in the Federal Register a notice of proposed rulemaking. The notice shall include:

(1) The terms of the proposed rule;

(2) A reference to section 6(b) of the Act and to section 107 of the Contract Work Hours and Safety Standards Act;

(3) An invitation to interested persons to submit within 30 days after publication of the notice written data, views, and arguments, which shall be available for public inspection and copying, except as to matters the disclosure of which is prohibited by law;

(4) The time and place for an informal hearing to be commenced not earlier than 10 days following the end of the period for written comments;

(5) A requirement for the filing of an intention to appear at the hearing, together with a statement of the position to be taken with regard to the proposed rule and of the evidence to be adduced in support of the position;

(6) Designation of a presiding officer to conduct the hearing; and

(7) Any other appropriate provisions pertinent to the proceeding.

(c) Any interested person who files an intention to appear in accordance with paragraph (b) of this section shall have a right to participate at the informal hearing.

(d) In lieu of the procedure prescribed in paragraph (b) of this section, the Assistant Secretary may follow the procedure prescribed in paragraph (b) of § 1911.11 providing an opportunity for informal hearing.

[36 FR 17507, Sept. 1, 1971, as amended at 37 FR 12231, June 21, 1972]

§ 1911.11 Other standards.

The Assistant Secretary may promulgate, modify, or revoke a standard applicable to employments other than

those in construction work, as defined in § 1910.12(b) of this chapter, in the following manner:

(a) The Assistant Secretary may request the recommendations of an advisory committee appointed under section 7 of the Act. In such event, the Assistant Secretary shall submit to the committee any proposal of his own or of the Secretary of Health, Education, and Welfare, together with all pertinent factual information available to him, including the results of research, demonstrations, and experiments. The committee shall submit to the Assistant Secretary its recommendations regarding the rule to be promulgated within the period prescribed by the Assistant Secretary, which in no event shall be longer than 270 days.

(b) The Assistant Secretary shall publish in the FEDERAL REGISTER a notice of proposed rulemaking. Where an advisory committee has been consulted and the Assistant Secretary determines that a rule should be issued, the notice shall be published within 60 days after the submission of the committee's recommendations or the expiration of the period prescribed for such submissions, whichever date is earlier. The notice shall include:

(1) The terms of the proposed rule;

(2) A reference to section 6(b) of the Act and to the appropriate section of any particular statute applicable to the employments affected by the rule;

(3) An invitation to interested persons to submit within 30 days after publication of the notice written data, views, and arguments, which shall be available for public inspection and copying, except as to matters the disclosure of which is prohibited by law;

(4) Either the time and place of an informal hearing on the proposed rule to be held not earlier than 10 days from the last day of the period for written comments, or information to interested persons that they may file on or before the 30th day after publication of the notice written objections to the proposed rule meeting the requirements of paragraph (c) of this section and request an informal hearing on the objections; and

(5) Any other appropriate provisions with regard to the proceeding.

(c) Objections to be submitted pursuant to paragraph (b) of this section shall comply with the following conditions:

(1) The objections must include the name and address of the objector;

(2) The objections must be postmarked on or before the 30th day after the date of publication of the notice of proposed rulemaking;

(3) The objections must specify with particularity the provision of the proposed rule to which objection is taken, and must state the grounds therefor;

(4) Each objection must be separately stated and numbered; and

(5) The objections must be accompanied by a summary of the evidence proposed to be adduced at the requested hearing.

(d) Within 30 days after the last day for filing objections, if objections are filed in substantial compliance with paragraph (c) of this section, the Assistant Secretary shall, and in any other case may, publish in the FEDERAL REGISTER a notice of informal hearing. The notice shall contain:

(1) A statement of the time, place, and nature of the hearing;

(2) A reference to the authority under which the hearing is to be held;

(3) A specification of the provisions of the proposed rule which have been objected to, and on which an informal hearing has been requested;

(4) A specification of the issues on which the hearing is to be had, which shall include at least all the issues raised by any objections properly filed, on which a hearing has been requested;

(5) The requirement for the filing of an intention to appear at the hearing together with a statement of the position to be taken with regard to the issues specified and of the evidence to be adduced in support of the position;

(6) The designation of a presiding officer to conduct the hearing; and

(7) Any other appropriate provisions with regard to the proceeding.

(e) Any objector requesting a hearing on proposed rule, and any interested person who files a proper intention to appear shall be entitled to participate at a hearing.

§ 1911.12 Emergency standards.

(a)(1) Whenever an emergency standard is published pursuant to section 6(c) of the Act, the Assistant Secretary must commence a proceeding under section 6(b) of the Act, and the standard as published must serve as a proposed rule. Any notice of proposed rulemaking shall also give notice of any appropriate subsidiary proposals.

(2) An emergency standard promulgated pursuant to section 6(c) of the Act shall be considered issued at the time when the standard is officially filed in the Office of the Federal Register. The time of official filing in the Office of the Federal Register is established for the purpose of determining the prematurity, timeliness, or lateness of petitions for judicial review.

(b) If the Assistant Secretary wishes to consult an advisory committee on any of the proposals as permitted by section 7(b) of the Act, he shall afford interested persons an opportunity to inspect and copy any recommendations of the advisory committee within a reasonable time before the commencement of any informal hearing which may be held under this part, or before the termination of the period for the submission of written comments whenever an informal hearing is not initially noticed under § 1910.11(b)(4) of this chapter.

(c) Section 6(c) requires that any standard must be promulgated following the rulemaking proceeding within 6 months after the publication of the emergency standard. Because of the shortness of this period, the conduct of the proceeding shall be expedited to the extent practicable.

[37 FR 8664, Apr. 29, 1972, as amended at 42 FR 65166, Dec. 30, 1977]

Hearings

§ 1911.15 Nature of hearing.

(a)(1) The legislative history of section 6 indicates that Congress intended informal rather than formal rulemaking procedures to apply. See the Conference Report, H. Rept. No. 91-1765, 91st Cong., second sess., 34 (1970). The informality of the proceedings is also suggested by the fact that section 6(b) permits the making of a decision on the basis of written comments alone (unless an objection to a rule is made and a hearing is requested), the use of advisory committees, and the inherent legislative nature of the tasks involved. For these reasons, the proceedings pursuant to § 1911.10 or § 1911.11 shall be informal.

(2) Section 6(b)(3) provides an opportunity for a hearing on objections to proposed rulemaking, and section 6(f) provides in connection with the judicial review of standards, that determinations of the Secretary shall be conclusive if supported by substantial evidence in the record as a whole. Although these sections are not read as requiring a rulemaking proceeding within the meaning of the last sentence of 5 U.S.C. 553(c) requiring the application of the formal requirements of 5 U.S.C. 556 and 557, they do suggest a congressional expectation that the rulemaking would be on the basis of a record to which a substantial evidence test, where pertinent, may be applied in the event an informal hearing is held.

(3) The oral hearing shall be legislative in type. However, fairness may require an opportunity for cross-examination on crucial issues. The presiding officer is empowered to permit cross-examination under such circumstances. The essential intent is to provide an opportunity for effective oral presentation by interested persons which can be carried out with expedition and in the absence of rigid procedures which might unduly impede or protract the rulemaking process.

(b) Although any hearing shall be informal and legislative in type, this part is intended to provide more than the bare essentials of informal rulemaking under 5 U.S.C. 553. The additional requirements are the following:

(1) The presiding officer shall be a hearing examiner appointed under 5 U.S.C. 3105.

(2) The presiding officer shall provide an opportunity for cross-examination on crucial issues.

(3) The hearing shall be reported verbatim, and a transcript shall be available to any interested person on such terms as the presiding officer may provide.

[37 FR 8664, Apr. 29, 1972, as amended at 37 FR 12231, June 21, 1972]

§ 1911.16 Powers of presiding officer.

The officer presiding at a hearing shall have all the powers necessary or appropriate to conduct a fair and full hearing, including the powers:

(a) To regulate the course of the proceedings;

(b) To dispose of procedural requests, objections, and comparable matters;

(c) To confine the presentations to the issues specified in the notice of hearing, or, where no issues are specified, to matters pertinent to the proposed rule;

(d) To regulate the conduct of those present at the hearing by appropriate means;

(e) In his discretion, to permit cross-examination of any witness;

(f) To take official notice of material facts not appearing in the evidence in the record, so long as parties are entitled, on timely request, to an opportunity to show the contrary; and

(g) In his discretion, to keep the record open for a reasonable, stated time to receive written recommendations, and supporting reasons, and additional data, views, and arguments from any person who has participated in the oral proceeding.

§ 1911.17 Certification of the record of a hearing.

Upon completion of the oral presentations, the transcript thereof, together with written submissions on the proposed rule, exhibits filed during the hearing, and all posthearing comments, recommendations, and supporting reasons shall be certified by the officer presiding at the hearing to the Assistant Secretary.

§ 1911.18 Decision.

(a)(1) Within 60 days after the expiration of the period provided for the submission of written data, views, and arguments on a proposed rule on which no hearing is held, or within 60 days after the certification of the record of a hearing, the Assistant Secretary shall publish in the FEDERAL REGISTER either an appropriate rule promulgating, modifying, or revoking a standard, or a determination that such a rule should not be issued. The action of the Assistant Secretary shall be taken after consideration of all relevant matter presented in written submissions and in any hearings held under this part.

(2) A determination that a rule should not be issued on the basis of existing relevant matter may be accompanied by an invitation for the submission of additional data, views, or arguments from interested persons on the issue or issues involved. In which event, an appropriate rule or other determination shall be made within 60 days following the end of the period allowed for the submission of the additional comments.

(b) Any rule or standard adopted under paragraph (a) of this section shall incorporate a concise general statement of its basis and purpose. The statement is not required to include specific and detailed findings and conclusions of the kind customarily associated with formal proceedings. However, the statement will show the significant issues which have been faced, and will articulate the rationale for their solution.

(c) Where an advisory committee has been consulted in the formulation of a proposed rule, the Assistant Secretary may seek the advice of the advisory committee as to the disposition of the proceeding. In giving advice to the Assistant Secretary, an advisory committee shall consider all matter presented to the Assistant Secretary. The advice of an advisory committee shall take the form of written recommendations to be submitted to the Assistant Secretary within a period to be prescribed by him. When the recommendations are contained in the transcript of the meeting of an advisory committee, they shall be summary in form. See §§ 1912.33 and 1912.34 of this chapter.

(d) A rule promulgating, modifying, or revoking a standard, or a determination that a rule should not be promulgated, shall be considered issued at the time when the rule or determination is officially filed in the Office of the Federal Register. The time of official filing in the Office of the Federal Register is established for the purpose

of determining the prematurity, timeliness, or lateness of petitions for judicial review.

[37 FR 8665, Apr. 29, 1972, as amended at 42 FR 65166, Dec. 30, 1977]

PART 1912—ADVISORY COMMITTEES ON STANDARDS

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1912.34 Freedom of Information Act.
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1912.40 General services.
1912.41 Legal services.
1912.42 Reservation.
1912.43 Petitions for changes in the rules; complaints.
1912.44 Definitions.

AUTHORITY: Secs. 4, 6, 7, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 656, 657); Federal Advisory Committee Act (5 U.S.C. App. 1); sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable.

SOURCE: 38 FR 28035, Oct. 11, 1973, unless otherwise noted.

§ 1912.1 Purpose and scope.

(a) This part prescribes the policies and procedures governing the composition and functions of advisory committees which have been, or may be, appointed under section 7(b) of the Act to assist the Assistant Secretary in carrying out the standards-setting duties of the Secretary of Labor under section 6 of the Act. Such committees are specifically authorized by section 7(b). The part also prescribes the policies and procedures governing the composition and functions of the Advisory Committee on Construction Safety and Health.

(b) The policies and practices herein are intended to reflect those expressed in the Federal Advisory Committee Act (Pub. L. 92-463, 86 Stat. 770) and will be applied in a manner consistent with the Act, Office of Management and Budget Circular A-63, "Committee Management", and the Department of Labor's general rules under that Act which are published in Part 15 of this Title.

ORGANIZATIONAL MATTERS

§ 1912.2 Types of standards advisory committees.

The Assistant Secretary establishes two types of advisory committees under section 7(b) of the Act to assist him in his standards-setting duties. These are:

(a) Continuing committees which have been, or may be established from time to time, to assist in the development of standards in areas where there is frequent rulemaking and the use of ad hoc committees is impractical; and (b) ad hoc committees which are established to render advice in particular rulemaking proceedings.

§ 1912.3 Advisory Committee on Construction Safety and Health

(a) This part applies to the Advisory Committee on Construction Safety and Health which has been established under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333), commonly known as the Construction Safety Act.

The aforesaid section 107 requires the Secretary of Labor to seek the advice of the Advisory Committee in formulating construction standards thereunder. The standards which have been issued under section 107 are published in Part 1926 of this chapter. In view of the far-reaching coverage of the Construction Safety Act, the myriad of standards which may be issued thereunder, and the fact that the Construction Safety Act would also apply to much of the work which is covered by the Williams-Steiger Occupational Safety and Health Act of 1970, whenever occupational safety or health standards for construction activities are proposed, the Assistant Secretary shall consult the Advisory Committee. The composition of the Advisory Committee is consistent with that of advisory committees which may be appointed under section 7(b) of the Act. See paragraph (c) of this section. An additional advisory committee will not normally be established under section 7(b) of the Act, unless the issue or issues involved include, but extend beyond construction activity. See § 1912.4 concerning the general policy against duplication of activity by advisory committees.

(b) The Advisory Committee is a continuing advisory body. It is composed of 15 members appointed by the Assistant Secretary, one of whom is appointed by him as Chairman. The composition of the Advisory Committee is as follows:

(1) One member who is a designee of the Secretary of Health, Education, and Welfare;

(2) Five members who are qualified by experience and affiliation to present the viewpoint of the employers involved, and five members who are similarly qualified to present the viewpoint of the employees involved;

(3) Two representatives of State safety and health agencies; and

(4) Two members who are qualified by knowledge and experience to make a useful contribution to the work of the Committee.

(c) As originally constituted, the Advisory Committee was composed of nine members. However, pursuant to section 105 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 331), it has been found necessary and proper in the public interest and in order to prevent possible injustice, to vary the composition of the Advisory Committee:

(1) By having its membership and representation conform to the provisions of section 7(b) of the Williams-Steiger Occupational Safety and Health Act, and (2) by increasing its membership to 15 members as permitted under the aforementioned section 7(b). Greater membership and greater representation serve the public interest and avoids possible injustice by permitting for the most part the use of one advisory committee, rather than possibly several advisory committees, in situations where both the Contract Work Hours and Safety Standards Act and the Williams-Steiger Occupational Safety and Health Act may be expected to apply to construction activity and by affording a greater opportunity for representation on the Advisory Committee within the construction industry.

(d) See paragraph (c) of § 1912.5 regarding the general policy role of the Advisory Committee.

(e) Except as provided in remaining paragraphs of this section, each member of the Advisory Committee shall serve for a period of 2 years, unless he becomes unable to serve, or resigns, or ceases to be qualified to serve on the Committee because he no longer meets any relevant representational requirements, or is removed by the Assistant Secretary in the interests of the administration of legislation involved. In such cases, the Assistant Secretary may appoint a new member to serve for the remainder of the unexpired term, who shall be representative of the same interest.

(f) The designee of the Secretary of Health, Education, and Welfare shall have no fixed term.

(g) To provide for continuity in the membership of the Committee, the terms of the members may be appropriately staggered.

(h) Members may be appointed to successive terms.

(i) A member who is otherwise qualified may continue to serve until a successor is appointed.

(j) There shall be filed on behalf of the Advisory Committee on Construction Safety and Health, an advisory committee established by the Construction Safety Act, a charter in accordance with section 9(c) of the Federal Advisory Committee Act upon the expiration of each successive 2-year period following the date of enactment of the Construction Safety Act (i.e., August 9, 1969).

§ 1912.4 Avoidance of duplication.

No standards advisory committee shall be created if its duties are being, or could be, performed by an existing advisory committee established under section 7(b) of the Act.

§ 1912.5 National Advisory Committee on Occupational Safety and Health.

(a) Section 7(a) of the Act established a National Advisory Committee on Occupational Safety and Health. The Committee is to advise, consult with, and make recommendations to the Secretary and the Secretary of Health, Education, and Welfare on matters relating to general administration of the Act.

(b) Advisory committees appointed under section 7(b) of the Act, which are the subject of this part, have a more limited role. Such advisory committees are concerned exclusively with assisting the Assistant Secretary in his standards-setting functions under section 6 of the Act.

(c) On the other hand, the Advisory Committee on Construction Safety and Health, established under the Construction Safety Act, provides assistance in both the setting of standards thereunder and policy matters arising in the administration of the Construction Safety Act. To the extent that the Advisory Committee on Construction Safety and Health renders advice to the Assistant Secretary on general policy matters, its activities should be coordinated with those of the National Advisory Committee on Occupational Safety and Health.

§ 1912.6 Conflict of interest.

No members of any advisory committee other than members representing employers or employees shall have an economic interest in any proposed rule.

§ 1912.7 Reports.

The Assistant Secretary shall prepare, or cause to be prepared, for the Department of Labor's Committee Management Officer reports describing the committee's membership, functions, and actions as may be necessary for the performance of the duties of the Committee Management officer.

§ 1912.8 Committee charters.

(a) Filing: No advisory committee shall take any action or conduct any business subsequent to January 5, 1973, until a committee charter has been filed with the Secretary of Labor, the standing committees of the Congress having legislative jurisdiction of the Department of Labor and the Library of Congress.

(b) Committee charter information: Each Advisory committee charter shall contain the following information:

(1) The committee's official designation;

(2) The committee's objectives and scope of activity; i.e., the standard or standards to be developed;

(3) The period of time necessary for the committee to carry out its purposes;

(4) The agency to whom the advisory committee reports (i.e., the Assistant Secretary);

(5) The agency responsible for providing support (i.e., the Occupational Safety and Health Administration);

(6) Description of the committee's duties;

(7) The estimated number and frequency of committee meetings;

(8) The estimated annual operating costs in dollars and man-years;

(9) The committee's termination date or other fixed period of termination, if less than 2 years (see § 1912.3(j) concerning the Advisory Committee on Construction Safety and Health); and

(10) The date the charter is filed with the Department of Labor's Committee Management Officer.

(c) Applicability of this section to subgroups: The applicability of this

section to subgroups of an advisory committee depends upon the nature of the subgroup. With regard to formal subgroups, such as a formal subcommittee of an advisory committee, the requisite information should be set forth either in the charter of the parent committee or in a separate charter. Informal subgroups of an advisory committee, particularly those temporary in nature, need not be reflected expressly in a charter.

(d) The Assistant Secretary shall file each charter with the Department's Committee Management Officer.

§ 1912.9 Representation on section 7(b) committees.

(a) Any advisory committee appointed by the Assistant Secretary under section 7(b) of the Act shall contain the following:

(1) At least one member who is a designee of the Secretary of Health, Education, and Welfare;

(2) At least one member who is qualified by experience and affiliation to present the viewpoint of the employers involved, and at least one member who is similarly qualified to present the viewpoint of the employees involved. There shall be an equal number of representatives of employers and employees involved; and

(3) At least one representative of State health and safety agencies.

(b) The advisory committee may include such other persons as the Assistant Secretary may appoint who are qualified by knowledge and experience to make a useful contribution to the work of the committee, including one or more representatives of professional organizations of technicians or professionals specializing in occupational safety or health and one or more persons of nationally recognized standards-producing organizations, but the number of persons so appointed shall not exceed the number of persons appointed as representatives of Federal and State agencies.

(c) Each committee shall consist of not more than 15 members.

(d) The representation in the Advisory Committee on Construction Safety and Health is described in § 1912.3.

§ 1912.10 Terms of continuing committee members.

(a) Each member of a continuing committee established under section 7(b) of the Act, other than those appointed to a committee when it is formed initially shall serve for a period of 2 years, unless he becomes unable to serve, or resigns, or ceases to be qualified to serve because he no longer meets the representation requirements of section 7(b) of the Act or is removed by the Assistant Secretary in the interest of the administration of the Act. In such cases the Assistant Secretary may appoint a new member to serve for the remainder of the unexpired term, who shall be representative of the same interest.

(b) To provide for continuity in the membership of continuing committees the initial appointments of its members may be varied. For example, in the case of a 15-member committee, the Assistant Secretary could appoint two members representing Federal and State agencies, two members representing employers, two members representing employees, and two members representing other interests to one year terms. He could appoint two members representing Federal and State agencies, two members representing employers, two members representing employees, and one member representing other interests for two year terms. Thereafter, at the expiration of such terms, members would be appointed or reappointed for regular terms of two years. The initial appointments to committees with fewer than 15 members could be similarly varied.

§ 1912.11 Terms of ad hoc committee members.

Each member of an ad hoc advisory committee shall serve for such period as the Assistant Secretary may prescribe in his notice of appointment unless he becomes unable to serve, or resigns, or ceases to be qualified to serve because he no longer meets the representational requirements of section 7(b) of the Act, or is removed by the Assistant Secretary in the interest of the administration of the Act. In such cases, the Assistant Secretary

may appoint a new member to serve for the remaining portion of the period prescribed in the notice appointing the original member of the committee.

§ 1912.12 Termination of advisory committees; renewal.

(a) Every standards advisory committee established under section 7(b) of the Act shall terminate not later than 2 years after its charter has been filed, unless its charter is renewed by appropriate action for a successive period of not more than 2 years. The procedure for renewal shall be the same as that specified in paragraph (b) of this section.

(b) Each advisory committee established under section 7(b) of the Act which is in existence on January 5, 1973, shall terminate by January 5, 1975, unless it is renewed before the latter date. Before any advisory committee can be renewed, the Assistant Secretary must determine that such renewal is necessary, and so inform the Department of Labor's Committee Management Officer. The OMB Secretariat must be informed of this determination and the reasons for it. Such determination shall be made not more than 60 days before the scheduled date of termination. If the OMB Secretariat concurs, a new charter shall be filed renewing the advisory committee and a notice of the renewal shall be published in the FEDERAL REGISTER.

(c) Unless provided otherwise by the Assistant Secretary, the duration of a subgroup of a committee shall not be longer than that of the parent committee.

(d) No advisory committee required to file a new charter under this section shall take any action (other than the preparation and filing of charter) before the date on which the charter is filed.

OPERATION OF ADVISORY COMMITTEES

§ 1912.25 Call of meetings.

No advisory committee shall hold any meeting except at the call of, or with the advance approval, of the Assistant Secretary or his representative designated for this purpose. The Department of Labor's Committee Management Officer shall be promptly informed of any meeting that is called.

§ 1912.26 Approval of agenda.

Each meeting of an advisory committee shall be conducted in accordance with an agenda approved by the Assistant Secretary or his representative designated for this purpose. No particular form for the agency is prescribed.

§ 1912.27 Notice of meetings.

Public notice of any meeting of an advisory committee shall be given by the officer or employee calling the meeting at least fifteen (15) days in advance of the meeting; except when it is impractical to do so, or in an emergency situation, in which event shorter advance notice may be given to the extent that any advance notice is practical. It shall, however, be a general policy to publish notices as far in advance of the meeting as circumstances will permit. Such notice shall be given by publication in the FEDERAL REGISTER. In addition, notice may be given by such other means as press releases.

[48 FR 23185, May 24, 1983]

§ 1912.28 Contents of notice.

(a) The notice shall give the name o the committee, and the time and place of the meeting.

(b) The notice shall describe fully or summarize adequately the agenda.

(c) The notice shall announce that the meeting is open to the public.

(d) The notice shall indicate that interested persons have an opportunity to file statements in written form with the committee. The notice may specify whether the statements are to be filed before or during the meeting.

(1) The chairman may permit oral statements before the committee by interested persons. In exercising his discretion in this regard, the chairman shall take into consideration the number of persons in attendance, the nature and extent of their proposed individual participation, the extent to which presentations would anticipate presentations which may be made in any rulemaking proceeding under sec-

tion 6 of the Act subsequent to the recommendations of the committee, and the time, resources, and facilities available to the committee. When counsel is made available to the committee, the chairman shall consult counsel before making a decision on whether to permit oral statements. In his discretion, the chairman, upon consultation with counsel if made available to the committee, may allow or preclude the questioning of committee members or other participants.

(2) The person calling the meeting may provide in the notice of the meeting that summaries of any proposed oral presentations be filed in advance of the meeting, and may allow or preclude the questioning of committee members or other participants.

§ 1912.29 Attendance by members.

Any person appointed by the Assistant Secretary to an advisory committee has a right to be present at any duly called meeting. If any person representing the interests of employers, employees, or the States is unable to be present at a duly called meeting, he may notify the Assistant Secretary or his designee, and request that another member of the Committee representing the same interests be permitted to vote in his place on any matters coming before the advisory committee in the particular meeting. The request may be oral or in writing, and shall be accompanied by a statement of reasons for the anticipated absence. The Assistant Secretary or his designee shall grant the request whenever he is convinced that the reasons for absence are valid and that number of requested proxies for any particular meeting will not be so numerous as to impede materially the deliberations of the advisory committee.

§ 1912.30 Quorum; committee procedure.

(a) A majority of the members of any advisory committee, including the Construction Safety Advisory Committee, shall constitute a quorum, so long as there are present at least one member who is a representative of employees and one member who is a representative of employers.

(b) In the absence of its chairman, the committee may designate a member to preside at any meeting thereof.

§ 1912.31 Experts and consultants.

At the request of an advisory committee or the person calling a meeting of an advisory committee, the Assistant Secretary may make available to the committee any experts or consultants in the field involved. Any expert or consultant so made available may participate in the deliberations of the committee with the consent of the committee.

§ 1912.32 Presence of OSHA officer or employee.

The meetings of all advisory committees shall be in the presence of an OSHA officer or employee designated for this purpose. Such officer or employee shall be empowered to adjourn any meeting whenever he determines adjournment to be in the public interest.

§ 1912.33 Minutes.

(a) Detailed minutes of advisory committee meetings shall be prepared, as directed, and certified as accurate, by the Chairman of the committee. In addition to the minutes there shall be kept verbatim transcripts of all advisory committee meetings.

(b) The minutes shall include at least the following:

(1) A list of the advisory committee members and agency employees who were present at the meeting;

(2) Any significant conclusions reached which are not recommendations;

(3) Any written information made available for consideration by the committee, including copies of all reports received, issued, or approved by the committee;

(4) Any recommendations made by the committee to the Assistant Secretary and the reasons therefor;

(5) An explanation of the extent, if any, of public participation, including a list of interested persons who presented oral or written statements; and an estimate of the number of the members of the public who attended the meeting.

§ 1912.34 Freedom of Information Act.

Subject to the Freedom of Information Act (5 U.S.C. 552) and Part 70 of this title and Part 1913 of this chapter, there shall be available for public inspection and copying in the Office of Standards, Occupational Safety and Health Administration, documents which were made available to or prepared for or by each advisory committee.

§ 1912.35 Availability and cost of transcripts.

Except where prohibited by contractual agreements entered into before the effective date of the Federal Advisory Committee Act (January 5, 1973), any transcripts of advisory committee meetings are to be made available to any person at the actual cost of duplication.

§ 1912.36 Advice of advisory committees.

(a) Approval by a majority of all members of an advisory committee is encouraged for rendering advice or making recommendations. However, a failure to marshal a majority of all members of an advisory committee shall not be a reason for not giving advice to the Assistant Secretary. The Assistant Secretary shall be informed of any concurring or dissenting views.

(b) An advisory committee shall submit to the Assistant Secretary its recommendations within 90 days from the date of its commencement of its assigned tasks, or within such longer or shorter period otherwise prescribed by the Assistant Secretary or one of his representatives. If a committee believes that it cannot submit its recommendations within the applicable period, its chairman may make a written request for an extension of time to the Director of the Office of Standards, before the expiration of the period. The Director of the Office of Standards may grant such a request, provided that the period of the extension or extensions, together with the original period for the submission of recommendations, is not longer than 270 days from the date the advisory committee commenced its assigned tasks.

(c) In a case where an advisory committee has not submitted its recommendations by the end of the applicable period therefor, the Assistant Secretary may dissolve the committee and direct the immediate transmittal to him of any materials submitted to, or prepared by, the advisory committee.

MISCELLANEOUS

§ 1912.40 General services.

The Assistant Secretary shall provide supporting services to advisory committees. Such services shall include clerical, stenographic, and other forms of technical assistance.

§ 1912.41 Legal services.

The Solicitor of Labor shall provide such legal assistance as may be necessary or appropriate for advisory committees to carry out their functions in accordance with the requirements of this part.

§ 1912.42 Reservation.

The policies and procedures set forth in this part are intended for general application. In specific situations where the Assistant Secretary determines that different policies or procedures would better serve the objectives of the Act, such policies or procedures may be modified upon appropriate notice to any persons affected by the modification to the extent that such policies or procedures are consistent with the Federal Advisory Committee Act and OMB Circular A-63, and are approved by the Solicitor under Part 15 of this title.

§ 1912.43 Petitions for changes in the rules; complaints.

(a) Each interested person shall have the right to petition for the issuance, amendment, or repeal of rules published in this part. Any such petition will be considered in a reasonable time. Prompt notice shall be given of the denial in whole or in part of any petition. Except in affirming a prior denial or when the denial is self-explanatory, the notice shall be accompanied by a brief statement of the reasons therefor.

(b) Any advisory committee member or any other aggrieved person may file a written complaint with the Assistant

Secretary alleging noncompliance with the rules in this part. Any complaint must be timely filed, but in no case shall any complaint be filed later than thirty (30) days following the act of alleged noncompliance. Any complaint shall be acted upon promptly and a written notice of the disposition of the complaint shall be provided to the complainant.

§ 1912.44 Definitions.

As used in this Part 1912, unless the context clearly requires otherwise:

(a) "Act" means the Williams-Steiger Occupational Safety and Health Act of 1970 (84 Stat. 1590; 29 U.S.C. 650).

(b)(1) For purposes of implementing the Federal Advisory Committee Act, the term "Advisory Committee" has the same meaning as set forth in section 3 (2) thereof. Hence, the term includes subcommittees to the extent that the conduct of their meetings relates to matters regulated by the Federal Advisory Committee Act. Consistent with that definition as interpreted in Office of Management and Budget (OMB) Circular A-63, the term does not include informal subgroups having few characteristics of formal advisory committees.

(2)(i) For purposes of the Act, the term means any committee appointed under section 7(b) thereof to provide advice to the Assistant Secretary in the development of occupational safety and health standards under the Act.

(ii) The term also includes the Advisory Committee on Construction Safety and Health established under the Construction Safety Act.

(c) "Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health.

(d) "Committee charter" means an order, statement or proclamation of the Assistant Secretary establishing, continuing, or using an advisory committee, as the case may be.

(e) "Construction Safety Act" means section 107 of the Contract Work Hours and Safety Standards Act (83 Stat. 96; 40 U.S.C. 333).

PART 1912a—NATIONAL ADVISORY COMMITTEE ON OCCUPATIONAL SAFETY AND HEALTH

Sec.

1912a.1 Purpose and scope.
1912a.2 Membership.
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1912a.5 Advice and recommendations.
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1912a.11 Minutes; transcript.
1912a.12 Charter.
1912a.13 Subcommittees and subgroups.
1912a.14 Petitions for changes in the rules; complaints.

AUTHORITY: Secs. 7, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 656, 657); Federal Advisory Committee Act (5 U.S.C. App. 1); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable.

SOURCE: 38 FR 28934, Oct. 18, 1973, unless otherwise noted.

§ 1912a.1 Purpose and scope.

(a) Section 7(a) of the Williams-Steiger Occupational Safety and Health Act of 1970 establishes a National Advisory Committee on Occupational Safety and Health (hereinafter referred to as the Committee), to advise, consult with, and make recommendations to the Secretary of Labor and the Secretary of Health, Education, and Welfare, on matters relating to the administration of the Act.

(b) This Part 1912a sets forth the procedures used by the Committee in fulfilling its responsibilities. They are intended to comply with the requirements of the Federal Advisory Committee Act (Pub. L. 92-463), which obligates advisory committees used by federal agencies to adhere to certain basic methods of operation and administration.

§ 1912a.2 Membership.

The Committee is a continuing advisory body of 12 members. Two members will represent management, two members will represent labor, two members will represent the occupational health professions, two mem-

bers will represent the occupational safety professions, and four members will represent the public. The Secretary of Health, Education, and Welfare will designate the two members representative of the occupational health professions and two of the members representative of the public. All the members will be selected upon the basis of their experience and competence in the field of occupational safety and health. All the members will be appointed by the Secretary of Labor, who will designate one of the public members as Chairman.

§ 1912a.3 Terms of membership.

Commencing on July 1, 1973, the terms of membership shall be divided into two classes, each consisting of six members. Members of the first class shall be appointed for a term of one year. Members of the second class shall be appointed for a term of two years. Thereafter, members shall be appointed for regular terms of two years. At all times the Committee shall be composed of representatives of management, labor, and occupational safety and health professions, and of the public. Each member of the Committee shall serve his full term unless he resigns or becomes unable to serve in the judgment of the Secretary of Labor because of disability or because he ceases to be qualified to serve on the Committee because he is found by the Secretary of Labor no longer to meet the representational requirements of the Act. In such cases, the Secretary of Labor may appoint for the remainder of the unexpired term a new member who meets the same representational requirements, and is designated in the manner, of his predecessor.

§ 1912a.4 Meetings.

(a) The Committee shall hold no fewer than two meetings during each calendar year and, it is contemplated that no more than six meetings a year will be held. No meeting shall be held except at the call of or with the advance approval of:

(1) The Secretary of Labor, or his duly authorized representative; or

(2) The Secretary of Health, Education, and Welfare, or his duly authorized representative.

(b) An agenda shall be approved in advance by the person calling or approving the meeting, in consultation with the Chairman or his delegate. No particular form for the agenda is prescribed. Members of the Committee may propose items for the agenda to the Chairman.

§ 1912a.5 Advice and recommendations.

Any advice or recommendations of the Committee shall be given or made with approval of a majority of all Committee members present. The Chairman shall include in any report of such advice or recommendations any concurring or dissenting views as well as abstentions and absences. Any member may submit his own advice and recommendations in the form of individual views with respect to any matter which has been considered by the Committee.

§ 1912a.6 Quorum.

(a) A majority of the members of the Committee shall constitute a quorum.

(b) In an absence of brief duration of its Chairman, the Committee may designate a public member to preside at any meeting thereof. In case of an extended absence, the Secretary of Labor or his delegate shall appoint a public member to preside.

[38 FR 28934, Oct. 18, 1973, as amended at 48 FR 23185, May 24, 1983]

§ 1912a.7 Notice of meetings.

Public notice of any meeting of the Committee shall be given by the person calling the meeting in accordance with § 1912a.4 or at his direction at least fifteen (15) days in advance of the meeting; except when it is impractical to do so, or in an emergency situation, in which event shorter advance notice may be given. Such notice shall be given by publication in the FEDERAL REGISTER as much in advance of the meeting as circumstances will permit. In addition, notice may be given by such other means as press releases.

[48 FR 23185, May 24, 1983]

§ 1912a.8 Contents of notice.

(a) Notices of meetings shall describe fully or summarize adequately the agenda.

(b) The notice shall announce that the meeting is open to the public.

(c) The notice shall indicate that interested persons have an opportunity to file statements in written form with the Committee. The notice shall specify when the statements are to be filed with the Committee.

(d) In the discretion of the Chairman of the meeting, oral statements may be made before the Committee by interested persons after taking into consideration the number of persons in attendance, the nature and extent of their proposed individual participation, and the time, resources, and facilities available to the Committee. As a general policy, time for such presentations will be made available only at subcommittee meetings. The time for a meeting of the full committee does not normally permit the reception of such presentations without substantially intruding upon the frequently limited time that the members may be able to devote to the meeting. The person calling the meeting may provide in the notice of the meeting that summaries of any proposed oral presentations be filed in advance of the meeting.

§ 1912a.9 Assistance to the committee.

(a) At the request of the Committee or the person calling a meeting, the Assistant Secretary of Labor for Occupational Safety and Health may make available to the Committee any needed experts or consultants. Any expert or consultant so made available may participate in the deliberations of the Committee with the consent of the Committee.

(b) The Assistant Secretary shall furnish the Committee an executive secretary. He shall also furnish such secretarial, clerical, and other services as are deemed necessary to the conduct of its business.

(c) The Solicitor of Labor shall provide such legal assistance as may be necessary or appropriate for the Committee to carry out its functions in accordance with the requirements of this part.

§ 1912a.10 Presence of OSHA officer or employee.

The meetings of all advisory committees shall be in the presence of an officer or employee of the Federal Government referred to in § 1912a.4. Such officer or employee shall be empowered to adjourn any meeting whenever he determines adjournment to be in the public interest.

§ 1912a.11 Minutes; transcript.

(a) Detailed minutes of the Committee meetings shall be prepared, and shall be certified as accurate by the Chairman. In addition to the minutes there shall be kept verbatim transcripts of the Committee meetings.

(b) The minutes shall include at least the following:

(1) A list of the Committee members and agency employees who were present at the meeting;

(2) Any significant conclusions reached which are not recommendations;

(3) Any written information made available for consideration by the Committee, including copies of all reports received, issued, or approved by the Committee;

(4) Any recommendations made by the Committee and the reasons therefor;

(5) An explanation of the extent, if any, of public participation, including a list of interested persons who presented oral or written statements; and an estimate of the number of the members of the public who attended the meeting.

§ 1912a.12 Charter.

The Committee shall operate in accordance with its charter. In accordance with section 14(b)(2) of the Federal Advisory Committee Act, there shall be filed on behalf of the Committee a charter in accordance with section 9(c) thereof upon the expiration of each successive two-year period following December 28, 1970, the date of enactment of the Occupational Safety and Health Act.

§ 1912a.13 Subcommittees and subgroups.

(a) The Chairman may appoint from among the members of the Committee

any number of subcommittees for the purpose of assisting the Committee in carrying out its functions. All the provisions of this part regarding the conduct of Committee meetings are applicable to the conduct of subcommittee meetings. For example, any meeting of subcommittees shall be open to the public, and notice of subcommittee meetings shall be published in the FEDERAL REGISTER.

(b) The purpose of any subcommittee is to give advice and make recommendations solely to the full Committee and under no circumstances may any subcommittee act outside this purpose. The Chairman may appoint any member of a Subcommittee to act as Chairman.

(c) Subcommittee shall operate in accordance with the Committee's charter and the procedures set forth in this part.

(d) The Chairman may appoint temporary informal subgroups from among the members to perform such services as assisting the Committee or the Chairman by gathering technical information or for suggesting schedules, plans, agenda, terms or methods of operation.

§ 1912a.14 Petitions for changes in the rules; complaints.

(a) Any interested person shall have the right to petition for the issuance, amendment, or repeal of rules published in this part. Any such petition will be considered in a reasonable time. Prompt notice shall be given of the denial in whole or in part of any petition. Except in affirming a prior denial or when the denial is self-explanatory the notice shall be accompanied by a brief statement of the reasons therefor.

(b) Any advisory committee member or any other aggrieved person may file a written complaint with the Assistant Secretary alleging noncompliance with the rules in this part. Any complaint must be timely filed, but in no case shall any complaint be filed later than thirty (30) days following the day on which the act of alleged noncompliance occurred. Any complaint shall be acted upon promptly and a written notice of the disposition of the complaint shall be provided to the complainant.

(c) Complaints and petitions should make reference to this § 1912a.14 and be filed and addressed as follows:

Assistant Secretary of Labor for Occupational Safety and Health
United States Department of Labor
Washington, D.C. 20210.

PART 1913—RULES OF AGENCY PRACTICE AND PROCEDURE CONCERNING OSHA ACCESS TO EMPLOYEE MEDICAL RECORDS

AUTHORITY: Sec. 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 657); sec. e, Privacy Act (5 U.S.C. 552a(e); 5 U.S.C. 301).

§ 1913.10 Rules of agency practice and procedure concerning OSHA access to employee medical records.

(a) *General policy.* OSHA access to employee medical records will in certain circumstances be important to the agency's performance of its statutory functions. Medical records, however, contain personal details concerning the lives of employees. Due to the substantial personal privacy interests involved, OSHA authority to gain access to personally identifiable employee medical information will be exercised only after the agency has made a careful determination of its need for this information, and only with appropriate safeguards to protect individual privacy. Once this information is obtained, OSHA examination and use of it will be limited to only that information needed to accomplish the purpose for access. Personally identifiable employee medical information will be retained by OSHA only for so long as needed to accomplish the purpose for access, will be kept secure while being used, and will not be disclosed to other agencies or members of the public except in narrowly defined circumstances. This section establishes procedures to implement these policies.

(b) *Scope and application.* (1) Except as provided in paragraphs (b)(3) through (6) below, this section applies to all requests by OSHA personnel to obtain access to records in order to examine or copy personally identifi-

able employee medical information, whether or not pursuant to the access provisions of 29 CFR 1910.20(e).

(2) For the purposes of this section, "personally identifiable employee medical information" means employee medical information accompanied by either direct identifiers (name, address, social security number, payroll number, etc.) or by information which could reasonably be used in the particular circumstances indirectly to identify specific employees (e.g., exact age, height, weight, race, sex, date of initial employment, job title, etc.).

(3) This section does not apply to OSHA access to, or the use of, aggregate employee medical information or medical records on individual employees which is not in a personally identifiable form. This section does not apply to records required by 29 CFR Part 1904, to death certificates, or to employee exposure records, including biological monitoring records treated by 29 CFR 1910.20(c)(5) or by specific occupational safety and health standards as exposure records.

(4) This section does not apply where OSHA compliance personnel conduct an examination of employee medical records solely to verify employer compliance with the medical surveillance recordkeeping requirements of an occupational safety and health standard, or with 29 CFR 1910.20. An examination of this nature shall be conducted on-site and, if requested, shall be conducted under the observation of the recordholder. The OSHA compliance personnel shall not record and take off-site any information from medical records other than documentation of the fact of compliance or non-compliance.

(5) This section does not apply to agency access to, or the use of, personally identifiable employee medical information obtained in the course of litigation.

(6) This section does not apply where a written directive by the Assistant Secretary authorizes appropriately qualified personnel to conduct limited reviews of specific medical information mandated by an occupational safety and health standard, or of specific biological monitoring test results.

(7) Even if not covered by the terms of this section, all medically related information reported in a personally identifiable form shall be handled with appropriate discretion and care befitting all information concerning specific employees. There may, for example, be personal privacy interests involved which militate against disclosure of this kind of information to the public (*See*, 29 CFR 70.26 and 70a.3).

(c) *Responsible persons*— (1) *Assistant Secretary.* The Assistant Secretary of Labor for Occupational Safety and Health (Assistant Secretary) shall be responsible for the overall administration and implementation of the procedures contained in this section, including making final OSHA determinations concerning:

(i) Access to personally identifiable employee medical information (paragraph (d)), and

(ii) Inter-agency transfer or public disclosure of personally identifiable employee medical information (paragraph (m)).

(2) *OSHA Medical Records Officer.* The Assistant Secretary shall designate an OSHA official with experience or training in the evaluation, use, and privacy protection of medical records to be the OSHA Medical Records Officer. The OSHA Medical Records Officer shall report directly to the Assistant Secretary on matters concerning this section and shall be responsible for:

(i) Making recommendations to the Assistant Secretary as to the approval or denial of written access orders (paragraph (d)),

(ii) Assuring that written access orders meet the requirements of paragraphs (d) (2) and (3) of this section,

(iii) Responding to employee, collective bargaining agent, and employer objections concerning written access orders (paragraph (f)),

(iv) Regulating the use of direct personal identifiers (paragraph (g)),

(v) Regulating internal agency use and security of personally identifiable employee medical information (paragraphs (h) through (j)),

(vi) Assuring that the results of agency analyses of personally identifiable medical information are, where

appropriate, communicated to employees (paragraph (k)),

(vii) Preparing an annual report of OSHA's experience under this section (paragraph (l)), and

(viii) Assuring that advance notice is given of intended inter-agency transfers or public disclosures (paragraph (m)).

(3) *Principal OSHA Investigator.* The Principal OSHA Investigator shall be the OSHA employee in each instance of access to personally identifiable employee medical information who is made primarily responsible for assuring that the examination and use of this information is performed in the manner prescribed by a written access order and the requirements of this section (paragraphs (d) through (m). When access is pursuant to a written access order, the Principal OSHA Investigator shall be professionally trained in medicine, public health, or allied fields (epidemiology, toxicology, industrial hygiene, biostatistics, environmental health, etc.).

(d) *Written access orders*—(1) *Requirement for written access order.* Except as provided in paragraph (d)(4) below, each request by an OSHA representative to examine or copy personally identifiable employee medical information contained in a record held by an employer or other recordholder shall be made pursuant to a written access order which has been approved by the Assistant Secretary upon the recommendation of the OSHA Medical Records Officer. If deemed appropriate, a written access order may constitute, or be accompanied by, an administrative subpoena.

(2) *Approval criteria for written access order.* Before approving a written access order, the Assistant Secretary and the OSHA Medical Records Officer shall determine that:

(i) The medical information to be examined or copied is relevant to a statutory purpose and there is a need to gain access to this personally identifiable information,

(ii) The personally identifiable medical information to be examined or copied is limited to only that information needed to accomplish the purpose for access, and

(iii) The personnel authorized to review and analyze the personally identifiable medical information are limited to those who have a need for access and have appropriate professional qualifications.

(3) *Content of written access order.* Each written access order shall state with reasonable particularity:

(i) The statutory purposes for which access is sought,

(ii) A general description of the kind of employee medical information that will be examined and why there is a need to examine personally identifiable information,

(iii) Whether medical information will be examined on-site, and what type of information will be copied and removed off-site,

(iv) The name, address, and phone number of the Principal OSHA Investigator and the names of any other authorized persons who are expected to review and analyze the medical information.

(v) The name, address, and phone number of the OSHA Medical Records Officer, and

(vi) The anticipated period of time during which OSHA expects to retain the employee medical information in a personally identifiable form.

(4) *Special situations.* Written access orders need not be obtained to examine or copy personally identifiable employee medical information under the following circumstances:

(i) *Specific written consent.* If the specific written consent of an employee is obtained pursuant to 29 CFR 1910.20(e)(2)(ii), and the agency or an agency employee is listed on the authorization as the designated representative to receive the medical information, then a written access order need not be obtained. Whenever personally identifiable employee medical information is obtained through specific written consent and taken offsite, a Principal OSHA Investigator shall be promptly named to assure protection of the information, and the OSHA Medical Records Officer shall be notified of this person's identity. The personally identifiable medical information obtained shall thereafter be subject to the use and security re-

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quirements of paragraphs (h) through (m) of this section.

(ii) *Physician consultations.* A written access order need not be obtained where an OSHA staff or contract physician consults with an employer's physician concerning an occupational safety or health issue. In a situation of this nature, the OSHA physician may conduct on-site evaluation of employee medical records in consultation with the employer's physician, and may make necessary personal notes of his or her findings. No employee medical records, however, shall be taken off-site in the absence of a written access order or the specific written consent of an employee, and no notes of personally identifiable employee medical information made by the OSHA physician shall leave his or her control without the permission of the OSHA Medical Records Officer.

(e) *Presentation of written access order and notice to employees.* (1) The Principal OSHA Investigator, or someone under his or her supervision, shall present at least two (2) copies each of the written access order and an accompanying cover letter to the employer prior to examining or obtaining medical information subject to a written access order. At least one copy of the written access order shall not identify specific employees by direct personal identifier. The accompanying cover letter shall summarize the requirements of this section and indicate that questions or objections concerning the written access order may be directed to the Principal OSHA Investigator or to the OSHA Medical Records Officer.

(2) The Principal OSHA Investigator shall promptly present a copy of the written access order (which does not identify specific employees by direct personal identifier) and its accompanying cover letter to each collective bargaining agent representing employees whose medical records are subject to the written access order.

(3) The Principal OSHA Investigator shall indicate that the employer must promptly post a copy of the written access order which does not identify specific employees by direct personal identifier, as well as post its accompanying cover letter (*See,* 29 CFR 1910.20(e)(3)(ii)).

(4) The Principal OSHA Investigator shall discuss with any collective bargaining agent and with the employer the appropriateness of individual notice to employees affected by the written access order. Where it is agreed that individual notice is appropriate, the Principal OSHA Investigator shall promptly provide to the employer an adequate number of copies of the written access order (which does not identify specific employees by direct personal identifier) and its accompanying cover letter to enable the employer either to individually notify each employee or to place a copy in each employee's medical file.

(f) *Objections concerning a written access order.* All employee, collective bargaining agent, and employer written objections concerning access to records pursuant to a written access order shall be transmitted to the OSHA Medical Records Officer. Unless the agency decides otherwise, access to the records shall proceed without delay notwithstanding the lodging of an objection. The OSHA Medical Records Officer shall respond in writing to each employee's and collective bargaining agent's written objection to OSHA access. Where appropriate, the OSHA Medical Records Officer may revoke a written access order and direct that any medical information obtained by it be returned to the original recordholder or destroyed. The Principal OSHA Investigator shall assure that such instructions by the OSHA Medical Records Officer are promptly implemented.

(g) *Removal of direct personal identifiers.* Whenever employee medical information obtained pursuant to a written access order is taken off-site with direct personal identifiers included, the Principal OSHA Investigator shall, unless otherwise authorized by the OSHA Medical Records Officer, promptly separate all direct personal identifiers from the medical information, and code the medical information and the list of direct identifiers with a unique identifying number for each employee. The medical information with its numerical code shall thereafter be used and kept secured as though still in a directly identifiable form. The Principal OSHA Investiga-

tor shall also hand deliver or mail the list of direct personal identifiers with their corresponding numerical codes to the OSHA Medical Records Officer. The OSHA Medical Records Officer shall thereafter limit the use and distribution of the list of coded identifiers to those with a need to know its contents.

(h) *Internal agency use of personally identifiable employee medical information.* (1) The Principal OSHA Investigator shall in each instance of access be primarily responsible for assuring that personally identifiable employee medical information is used and kept secured in accordance with this section.

(2) The Principal OSHA Investigator, the OSHA Medical Records Officer, the Assistant Secretary, and any other authorized person listed on a written access order may permit the examination or use of personally identifiable employee medical information by agency employees and contractors who have a need for access, and appropriate qualifications for the purpose for which they are using the information. No OSHA employee or contractor is authorized to examine or otherwise use personally identifiable employee medical information unless so permitted.

(3) Where a need exists, access to personally identifiable employee medical information may be provided to attorneys in the Office of the Solicitor of Labor, and to agency contractors who are physicians or who have contractually agreed to abide by the requirements of this section and implementing agency directives and instructions.

(4) OSHA employees and contractors are only authorized to use personally identifiable employee medical information for the purposes for which it was obtained, unless the specific written consent of an employee is obtained as to a secondary purpose, or the procedures of paragraphs (d) through (g) of this section are repeated with respect to the secondary purpose.

(5) Whenever practicable, the examination of personally identifiable employee medical information shall be performed on-site with a minimum of medical information taken off-site in a personally identifiable form.

(i) *Security procedures.* (1) Agency files containing personally identifiable employee medical information shall be segregated from other agency files. When not in active use, files containing this information shall be kept secured in a locked cabinet or vault.

(2) The OSHA Medical Records Officer and the Principal OSHA Investigator shall each maintain a log of uses and transfers of personally identifiable employee medical information and lists of coded direct personal identifiers, except as to necessary uses by staff under their direct personal supervision.

(3) The photocopying or other duplication of personally identifiable employee medical information shall be kept to the minimum necessary to accomplish the purposes for which the information was obtained.

(4) The protective measures established by this section apply to all worksheets, duplicate copies, or other agency documents containing personally identifiable employee medical information.

(5) Intra-agency transfers of personally identifiable employee medical information shall be by hand delivery, United States mail, or equally protective means. Inter-office mailing channels shall not be used.

(j) *Retention and destruction of records.* (1) Consistent with OSHA records disposition programs, personally identifiable employee medical information and lists of coded direct personal identifiers shall be destroyed or returned to the original recordholder when no longer needed for the purposes for which they were obtained.

(2) Personally identifiable employee medical information which is currently not being used actively but may be needed for future use shall be transferred to the OSHA Medical Records Officer. The OSHA Medical Records Officer shall conduct an annual review of all centrally-held information to determine which information is no longer needed for the purposes for which it was obtained.

(k) *Results of an agency analysis using personally identifiable employee medical information.* The OSHA Med-

ical Records Officer shall, as appropriate, assure that the results of an agency analysis using personally identifiable employee medical information are communicated to the employees whose personal medical information was used as a part of the analysis.

(l) *Annual report.* The OSHA Medical Records Officer shall on an annual basis review OSHA's experience under this section during the previous year, and prepare a report to the Assistant Secretary which shall be made available to the public. This report shall discuss:

(1) the number of written access orders approved and a summary of the purposes for access,

(2) the nature and disposition of employee, collective bargaining agent, and employer written objections concerning OSHA access to personally identifiable employee medical information, and

(3) the nature and disposition of requests for inter-agency transfer or public disclosure of personally identifiable employee medical information.

(m) *Inter-agency transfer and public disclosure.* (1) Personally identifiable employee medical information shall not be transferred to another agency or office outside of OSHA (other than to the Office of the Solicitor of Labor) or disclosed to the public (other than to the affected employee or the original recordholder) except when required by law or when approved by the Assistant Secretary.

(2) Except as provided in paragraph (m)(3) of this section, the Assistant Secretary shall not approve a request for an inter-agency transfer of personally identifiable employee medical information, which has not been consented to by the affected employees, unless the request is by a public health agency which:

(i) needs the requested information in a personally identifiable form for a substantial public health purpose,

(ii) will not use the requested information to make individual determinations concerning affected employees which could be to their detriment,

(iii) has regulations or established written procedures providing protection for personally identifiable medical information substantially equivalent to that of this section, and

(iv) satisfies an exemption to the Privacy Act to the extent that the Privacy Act applies to the requested information (*See,* 5 U.S.C. 552a(b); 29 CFR 70a.3).

(3) Upon the approval of the Assistant Secretary, personally identifiable employee medical information may be transferred to:

(i) the National Institute for Occupational Safety and Health (NIOSH) and

(ii) the Department of Justice when necessary with respect to a specific action under the Occupational Safety and Health Act.

(4) The Assistant Secretary shall not approve a request for public disclosure of employee medical information containing direct personal identifiers unless there are compelling circumstances affecting the health or safety of an individual.

(5) The Assistant Secretary shall not approve a request for public disclosure of employee medical information which contains information which could reasonably be used indirectly to identify specific employees when the disclosure would constitute a clearly unwarranted invasion of personal privacy (*See,* 5 U.S.C. 552(b)(6); 29 CFR 70.26).

(6) Except as to inter-agency transfers to NIOSH or the Department of Justice, the OSHA Medical Records Officer shall assure that advance notice is provided to any collective bargaining agent representing affected employees and to the employer on each occasion that OSHA intends to either transfer personally identifiable employee medical information to another agency or disclose it to a member of the public other than to an affected employee. When feasible, the OSHA Medical Records Officer shall take reasonable steps to assure that advance notice is provided to affected employees when the employee medical information to be transferred or disclosed contains direct personal identifiers.

(n) *Effective date.* This section shall become effective on August 21, 1980.

[45 FR 35294, May 23, 1980; 45 FR 54334, Aug. 15, 1980]

PART 1915—OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR SHIPYARD EMPLOYMENT

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AUTHORITY: Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable; 29 CFR Part 1911.

Section 1915.99 also issued under 5 U.S.C. 553.

SOURCE: 47 FR 16986, Apr. 20, 1982, unless otherwise noted.

Subpart A—General Provisions

§ 1915.1 Purpose and authority.

The provisions in this part constitute safety and health regulations issued by the Secretary pursuant to section 41 of the Longshoremen's and Harbor Workers' Compensation Act, as amended (33 U.S.C. 941) and occupational safety and health standards issued by the Secretary pursuant to section 6 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 655).

§ 1915.2 Scope and application.

(a) Except where otherwise provided, the provisions of this part shall apply to all ship repairing, shipbuilding and shipbreaking employments and related employments.

(b) This part does not apply to matters under the control of the United States Coast Guard within the scope of Title 52 of the Revised Statutes and acts supplementary or amendatory thereto (46 U.S.C. secs. 1-1388 passim) including, but not restricted to, the master, ship's officer, crew members, design, construction and maintenance of the vessel, its gear and equipment; to matters within the regulatory authority of the United States Coast Guard to safeguard vessels, harbors, ports and waterfront facilities under the provisions of the Espionage Act of June 17, 1917, as amended (50 U.S.C. 191 et seq.; 22 U.S.C. 401 et seq.); including the provisions of Executive Order 10173, as amended by Executive Orders 10277 and 10352 (3 CFR, 1949-1953 Comp., pp. 356, 778 and 873); or to matters within the regulatory a thority of the United States Coa Guard with respect to lights, warnir devices, safety equipment and oth matters relating to the promotion safety of lives and property under se tion 4(e) of the Outer Continent Shelf Lands Act (43 U.S.C. 1333).

§ 1915.3 Responsibility.

(a) The responsibility for complian with the regulations of this part placed upon "employers" as defined § 1915.4.

(b) This part does not apply owners, operators, agents or maste of vessels unless such persons a acting as "employers." However, th part is not intended to relieve owne operators, agents or masters of vesse who are not "employers" from respo sibilities or duties now placed upo them by law, regulation or custom.

(c) The responsibilities placed upo the competent person herein shall deemed to be the responsibilities the employer.

§ 1915.4 Definitions.

(a) The term "shall" indicates pro sions which are mandatory.

(b) The term "Secretary" means t Secretary of Labor.

(c) The term "employer" means employer, any of whose employees a employed, in whole or in part, in sh repairing, shipbuilding, shipbreaki or related employments as defined this section on the navigable waters the United States, including dry dock graving docks and marine railways.

(d) The term "employee" means a person engaged in ship repairing, shi building, shipbreaking or related e ployments on the navigable waters the United States, including dry dock graving docks and marine railway other than the master, ship's office crew of the vessel, or any person e gaged by the master to repair a vessel under 18 net tons.

(e) The term "gangway" means a ramp-like or stair-like means of acce provided to enable personnel to boa or leave a vessel including accommod tion ladders, gangplanks and brows.

(f) The term "vessel" includes eve description of watercraft or other ar

ficial contrivance used, or capable of being used, as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

(g) For purposes of § 1915.74, the term "barge" means an unpowered, flat bottom, shallow draft vessel including scows, carfloats and lighters. For purposes of this section, the term does not include ship shaped or deep draft barges.

(h) For purposes of § 1915.74, the term "river tow boat" means a shallow draft, low free board, self-propelled vessel designed to tow river barges by pushing ahead. For purposes of this section, the term does not include other towing vessels.

(i) The term "shipyard employment" means ship repairing, shipbuilding, shipbreaking and related employments.

(j) The terms "ship repair" and "ship repairing" mean any repair of a vessel including, but not restricted to, alterations, conversions, installations, cleaning, painting, and maintenance work.

(k) The term "shipbuilding" means the construction of a vessel including the installation of machinery and equipment.

(l) The term "shipbreaking" means any breaking down of a vessel's structure for the purpose of scrapping the vessel, including the removal of gear, equipment or any component part of a vessel.

(m) The term "related employment" means any employment performed as an incident to or in conjunction with ship repairing, shipbuilding or shipbreaking work, including, but not restricted to, inspection, testing, and employment as a watchman.

(n) The term "hazardous substance" means a substance which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritant, or otherwise harmful is likely to cause injury.

(o) The term "competent person" for purposes of this part means a person who is capable of recognizing and evaluating employee exposure to hazardous substances or to other unsafe conditions and is capable of specifying the necessary protection and precautions to be taken to ensure the safety of employees as required by the particular regulation under the condition to which it applies. For the purposes of Subparts B, C, and D of this part, except for § 1915.35(b)(8) and § 1915.36(a)(5), to which the above definition applies, the competent person must also meet the additional requirements of § 1915.7.

(p) The term "confined space" means a compartment of small size and limited access such as a double bottom tank, cofferdam, or other space which by its small size and confined nature can readily create or aggravate a hazardous exposure.

(q) The term "enclosed space" means any space, other than a confined space, which is enclosed by bulkheads and overhead. It includes cargo holds, tanks, quarters, and machinery and boiler spaces.

(r) The term "hot work" means riveting, welding, burning or other fire or spark producing operations.

(s) The term "cold work" means any work which does not involve riveting, welding, burning or other fire or spark producing operations.

(t) The term "portable unfired pressure vessel" means any pressure container or vessel used aboard ship, other than the ship's equipment, containing liquids or gases under pressure, excepting pressure vessels built to ICC regulations under 49 CFR Part 178, Subparts C and H.

(u) The term "powder actuated fastening tool" means a tool or machine which drives a stud, pin, or fastener by means of an explosive charge.

(v) For purposes of § 1915.97, the term "hazardous material" means a material which has one or more of the following characteristics: (1) Has a flash point below 140° F., closed cup, or is subject to spontaneous heating; (2) has a threshold limit value below 500 p.p.m. in the case of a gas or vapor, below 500 mg./m.^{3} for fumes, and below 25 m.p.p.c.f. in case of a dust; (3) has a single dose oral LD_{50} below 500 mg./kg.; (4) is subject to polymerization with the release of large amounts of energy; (5) is a strong oxidizing or reducing agent; (6) causes first degree burns to skin in short time exposure, or is systemically toxic by

skin contact; or (7) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes which have one or more of the above characteristics.

§ 1915.5 Reference specifications, standards and codes.

Specifications, standards, and codes of agencies of the U.S. Government, to the extent specified in the text, form a part of the regulations of this part. In addition, under the authority vested in the Secretary under the Act, the specifications, standards, and codes of organizations which are not agencies of the U.S. Government, in effect on the date of the promulgation of the regulations of this part as listed below, to the extent specified in the text, form a part of the regulations of this part:

National Fire Protection Association, 60 Batterymarch Park, Quincy, Massachusetts 02269. Subpart B, § 1915.14(a).

Underwriter's Laboratories, Inc., 207 East Ohio Street, Chicago, Illinois 60611, Subpart B, § 1915.13(b) and (f); Subpart C, §§ 1915.35(b)(7), 1915.36(a)(4); Subpart H, § 1915.132(a).

American National Standards Institute Safety Code for Portable Wood Ladders, A14.1-1959, American National Standards Institute, 10 East 40th Street, New York, New York 10016, Subpart E, § 1915.72(a)(6).

American National Standards Institute Safety Code for Portable Metal Ladders, A14.2-1956, American National Standards Institute, 10 East 40th Street, New York, New York 10016, Subpart E, § 1915.72(a)(4).

American National Standards Institute Safety Code for Head, Eye, and Respiratory Protection, Z2.1-1959, American National Standards Institute, 10 East 40th Street, New York, New York 10016, Subpart I, §§ 1915.151(a)(1), 1915.153(b).

American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section VIII, Rules for Construction of Unfired Pressure Vessels, 1963, American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017, Subpart K, § 1915.172(a).

Threshold Limit Values, 1970, American Conference of Governmental Industrial Hygienists, 1014 Broadway, Cincinnati, Ohio 45202, Subpart B, § 1915.12(a)(3) and (b)(3); Subpart C, § 1915.32(b).

American National Standards Institute Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7.1-1964, United States of America Standards Institute, Inc., 10 East 40th Street, New York, New York 10016, Subpart H, § 1915.134(c).

§ 1915.6 Commerical diving operations.

Commerical diving operations shall be subject to Subpart T of Part 1910, §§ 1910.401-1910.441 of this chapter.

§ 1915.7 Competent person.

(a) *Designation.* (1) For the purposes of Subparts B, C, D, and H of this part, except for §§ 1915.35(b)(8) and 1915.36(a)(5), one or more competent persons shall be designated by the employer in accordance with the applicable requirements of this section unless the requirements of Subparts B, C, D, and H of this part are always carried out by a National Fire Protection Association Certified Marine Chemist.

(2) The employer shall indicate on U.S. Department of Labor Form OSHA 73 "Designation of Competent Person" either those employees designated as competent persons or that the prescribed functions of such persons are always carried out by a National Fire Protection Association Certified Marine Chemist in addition to his professional duties. When additions or changes are made in the personnel so designated, a new Form OSHA 73 shall be executed. A copy of this executed form shall be forwarded to the nearest Area Office of the Occupational Safety and Health Administration.

(b) *Criteria.* The following criteria shall guide the employer in designating employees as competent persons:

(1) Ability to understand the meaning of designations on certificates and of any qualifications relating thereto and to carry out any instructions, either written or oral, left by the National Fire Protection Association Certified Marine Chemist or person authorized by the U.S. Coast Guard referred to in § 1915.14.

(2) Ability to use and interpret the readings of an oxygen indicator and a combustible gas indicator. The ability to use and interpret the readings of a carbon monoxide indicator and a carbon dioxide indicator, if the operations involved such hazardous gases.

(3) Familiarity with and understanding of Subparts B, C, D, and H of this part.

(4) Familiarity with the structure and knowledge of the location and des-

ignation of spaces of the types of vessels on which repair work is done.

(5) Capability to perform the tests and inspections required by Subparts B, C, D, and H of this part and to write the required logs.

(c) *Logging of inspections and tests.* (1) When tests and inspections required to be performed by a competent person by any provisions of Subparts B, C, D, and H of this part, except those referred to in §§ 1915.35(b)(8) and 1915.36(a)(5) are made, a record of the locations, operations performed and date, time, and results of the tests and any instructions resulting therefrom shall be recorded on U.S. Department of Labor Form OSHA 74, "Log of Inspections and Tests by Competent Person." A separate form shall be used for each vessel on which tests and inspections are made.

(2) This record shall be available for inspection in the immediate vicinity of the affected operations while they are in progress. This record or copy thereof shall be kept on file for a period of at least three months from the date of the completion of the job.

(3) A copy of any certificate issued in accordance with § 1915.14 and of any instructions issued by the National Fire Protection Association Certified Marine Chemist shall be kept on file with the log for a period of at least three months from the date of the completion of the job. The certificate and instructions issued by the person doing the fumigation referred to in § 1915.12(b)(1)(ii) shall also be kept on file for a period of at least 3 months from the date of the completion of the job.

(d) *Application.* The provisions of this section are intended to apply in their entirety to employers engaged in general ship repair, shipbuilding and shipbreaking. They do not apply in their entirety to employers whose work involves only certain portions of Subparts B, C, or D of this part, such as repair work on small craft in boat yards where only combustible gas indicator tests are necessary for fuel tank leaks or when using flammable paints below decks, the building of some wooden vessels where only knowledge of the precautions to be taken when using flammable paints is necessary and the breaking of vessels with no exposure to fuel oil or other flammable hazards. In such cases, employers may designate persons who are competent on the basis of the applicable portions of the criteria set forth in paragraph (b) of this section.

(Approved by the Office of Management and Budget under control number 1218-0011)

[47 FR 16986, Apr. 20, 1982, as amended at 54 FR 24334, June 7, 1989]

Subpart B—Explosive and Other Dangerous Atmospheres

§ 1915.11 Scope and application of subpart.

Sections 1915.12 through 1915.15 of this subpart shall apply to ship repairing and shipbreaking and shall not apply to shipbuilding. Section 1915.16 shall apply only to ship repairing.

§ 1915.12 Precautions before entering.

(a) *Flammable atmospheres and residues.* (1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (a)(1)(i) and (ii) of this section, the atmosphere within the space to be entered shall be tested by a competent person to determine the concentration of flammable vapors or gases within the space.

(i) Cargo spaces or other spaces containing or having last contained combustible or flammable liquids or gases in bulk.

(ii) Spaces immediately adjacent to those described in paragraph (a)(1)(i) of this section.

(2) If the tests indicate that the atmosphere in the space to be entered contains a concentration of flammable vapor or gas greater than 10 percent of the lower explosive limit, the space shall be ventilated to reduce the concentration below 10 percent of the lower explosive limit before men are permitted to enter.

(3) If the atmosphere in the space to be entered is found to contain a concentration of flammable vapor or gas below the level immediately dangerous to life as defined in § 1915.152(b)(1), but above the threshold limit value, employees shall be protected in ac-

cordance with the requirements of § 1915.152 (a), and (c), (d), or (e), whichever is applicable.

(b) *Toxic atmospheres and residues.* (1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (b)(1)(i), (ii), and (iii) of this section, the atmosphere in the space to be entered shall be tested for toxic atmospheric contaminants, and the space inspected for the presence of toxic or corrosive residues by a Marine Chemist, Industrial Hygienist or other person qualified to make these tests and inspections.

(i) Cargo spaces or other spaces containing or having last contained bulk liquids, gases, or solids of a toxic, corrosive, or irritant nature.

(ii) Spaces which have been fumigated.

(iii) Spaces immediately adjacent to those described in paragraphs (b)(1)(i) and (ii) of this section.

(2) If the tests indicate that the atmosphere in the space to be entered contains a concentration of toxic contaminants above the level which is immediately dangerous to life, the space shall be ventilated to reduce the concentration below the level immediately dangerous to life as defined in § 1915.152(b)(1).

(3) If the atmosphere in the space to be entered is found to contain a concentration of toxic contaminants below the level immediately dangerous to life as defined in § 1915.152(b)(1), but above the threshold limit value, employees shall be protected in accordance with the requirements of § 1915.152 (a), and (c), (d), or (e), whichever is applicable.

(4) The person qualified to make the tests and inspections referred to in paragraph (b)(1) of this section shall make a record of the tests, inspections and instructions pertaining to paragraph (a)(3) of this section and paragraphs (b)(2) and (b)(3) of this section on U.S. Department of Labor Form OSHA 74, which shall be available for inspection and kept on file in accordance with § 1915.7(c)(2).

(c) *Oxygen deficient atmospheres.* (1) Before employees are initially permitted to enter any of the ship's spaces designated in paragraphs (c)(1)(i) through (v) of this section, the atmosphere in the spaces to be entered shall be tested by a competent person with an oxygen indicator or other suitable device to ensure that it contains at least 16.5 percent oxygen.

(i) Spaces in which the test required by paragraphs (a) and (b) of this section indicate that no flammable or toxic contaminants are present in the atmosphere.

(ii) Compartments which have been sealed.

(iii) Spaces which have been coated and closed up.

(iv) Nonventilated compartments which have been freshly painted.

(v) Cargo spaces containing cargoes or residues of cargoes which absorb oxygen, such as scrap iron, fresh fruit and molasses, and various vegetable drying oils in bulk.

(2) If the tests indicate that the atmosphere in the space to be entered contains less than 16.5 percent oxygen, the space shall be ventilated until tests indicate an oxygen content above this level.

(d) *Exceptions.* In emergencies and in cases of work of brief duration necessary to accomplish the ventilation required or to start operations, work may be performed in atmospheres containing concentrations of flammable contaminants above the upper explosive limit or otherwise immediately dangerous to life, provided employees are protected in accordance with the requirements of § 1915.152 (a) and (b).

§ 1915.13 Cleaning and other cold work.

(a) Employees shall be permitted to perform manual cleaning to remove residue materials, scale, and debris or to perform other cold work in spaces described in § 1915.12(a)(1) (i) and (ii) and (b)(1)(i) through (iii) before they have been certified as gas free only under the following conditions:

(1) Liquid residues of flammable and toxic materials shall be removed from the spaces as thoroughly as practicable before employees start actual cleaning operations in these spaces. Drippings and spills of these materials on deck or elsewhere alongside the vessel shall be cleaned up as the work progresses. Special care shall be taken

to prevent the spilling or the draining of these materials into the water surrounding the vessel.

(2) Continuous natural or mechanical ventilation shall be provided to keep the concentration of flammable vapors below ten (10) percent of the lower explosive limit in all parts of the space: *Provided,* That if, because of the high volatility of the residues, a uniform concentration of less than ten (10) percent of the lower explosive limit cannot be achieved, sufficient exhaust ventilation shall be provided to reduce the concentration to or below that level in the major portions of the compartment.

(3) Tests shall be made by a competent person prior to commencement of cold work and with sufficient frequency thereafter, in accordance with temperature, volatility of the residues and other existing conditions in and about the spaces, to ensure that the concentration stated in paragraph (a)(2) of this section is not exceeded.

(4) Cold work only shall be permitted.

(5) Tests shall be made by a competent person to ensure that the exhaust vapors from these spaces are not accumulating in other areas within or around the vessel, marine railway, drydock, graving dock, or under the pier where sources of ignition may be present. Should such accumulations be found, any sources of ignition within the affected area shall be removed or extinguished.

(b) Only approved explosion-proof, self-contained, battery-fed, portable lamps shall be used in spaces described in paragraph (a) of § 1915.14 before the spaces have been certified as "Safe for Men." Battery-fed, portable lamps bearing the approval of the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration, and such lamps listed by the U.S. Coast Guard as approved for such use are deemed to meet the requirements of this paragraph.

(c) Signs shall be posted on the open deck adjacent to the access to spaces described in paragraph (a) of § 1915.14 prohibiting smoking and the use of open flames.

(d) The metallic parts of air moving devices, including fans, blowers, and jet-type air movers, and all duct work shall be electrically bonded to the vessel's structure.

(e) All motors and control equipment shall be of the explosion-proof type. Fans shall have nonferrous blades. Portable air ducts shall also be of nonferrous materials. All motors and associated control equipment shall be properly maintained and grounded.

(f) In spaces described in paragraph (a) of § 1915.14 which have been certified "Safe for Men," either battery lamps or explosion-proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration or the U.S. Coast Guard, shall be used: *Provided,* The lights are mounted to the space openings from the exterior, or suspended within the space with the cables so led as to protect them from injury.

(g) In spaces certified "Safe for Fire" nonexplosion proof lights may be used.

§ 1915.14 Certification before hot work is begun.

Paragraphs (a) through (c) of this section apply to ship repairing and shipbreaking. Paragraph (d) of this section applies to shipbreaking only.

(a) Employees shall not be permitted to engage in hot work or the use of powder actuated fastening tools in or on the following spaces, boundaries or pipe lines until a certificate setting forth that the hot work can be done in safety is issued. Such certificate shall be acceptable only if issued by a Marine Chemist certificated by the National Fire Protection Association, except that a certificate issued by another person authorized by the U.S. Coast Guard pursuant to the provisions of 46 CFR 35.01-1(c)(1) for tank vessels, 46 CFR 71.60-1(c)(1) for passenger vessels, and 46 CFR 91.50-1(c)(1) for cargo and miscellaneous vessels is acceptable for a particular inspection:

(1) *On tank vessels.* (i) Within or on the boundaries of cargo tanks which have been used to carry combustible

or flammable liquids and gases in bulk, or within spaces adjacent to such cargo tanks.

(ii) Within or on the boundaries of fuel tanks.

(iii) On pipe lines, heating coils, pumps, fittings, or other appurtenances connected to such cargo or fuel tanks.

(2) *On dry cargo, miscellaneous and passenger vessels.* (i) Within or on the boundaries of cargo tanks which have been used to carry combustible or flammable liquids and gases in bulk.

(ii) Within spaces adjacent to cargo tanks which have been used to carry flammable gases, or liquids with a flash point below 150° F., except where the distance between such cargo tanks and the work to be performed is not less than twenty-five (25) feet.

(iii) Within or on the boundaries of fuel tanks.

(iv) On pipe lines, heating coils, pumps, fittings, or other appurtenances connected to such cargo or fuel tanks.

(b) In dry cargo holds for which a Marine Chemist's certificate is not required by paragraph (a)(2)(ii) of this section, hot work may be performed only after a competent person has carefully examined the hold and found it to be free of flammable liquids, gases, and vapors. If flammable liquids, gases, or vapors are found, hot work shall not be performed within the space until the flammable liquids, gases, or vapors have been removed and a test indicates that the space is safe for fire.

(c) Before hot work is performed in engine room and boiler room spaces of any vessel for which a Marine Chemist's certificate is not required by the provision of paragraph (a) of this section or in fuel tank and engine compartments of boats, the bilges shall be inspected and tested by a competent person to ensure that they are free of flammable liquids, gases, and vapors. If flammable liquids, gases, or vapors are found, hot work shall not be performed within the space until the flammable liquids, gases, or vapors have been removed and a test indicates that the space is safe for fire.

(d) Before hot work is performed from open decks or in tanks or compartments from which the overhead has been completely removed, on the boundaries of cargo spaces or other spaces containing or having last contained combustible or flammable liquids or gases in bulk, the following steps shall be taken:

(1) Tests shall be made by a competent person to determine the concentration of flammable vapors in these spaces. The permissible level of concentration of flammable vapors shall not exceed ten (10) percent of the lower explosive limit in all parts of the spaces.

(2) When the tests indicate that a space contains a concentration of flammable vapors above the permissible concentration, the space shall be inerted with a nonflammable gas or with water, or sufficient ventilation shall be provided to reduce the concentration below the permissible level.

(3) When the bottom of a space contains flammable residues, it shall be flooded with water to cover all parts of the space to a depth of at least one (1) foot unless the space is inerted.

§ 1915.15 Maintaining gas free conditions.

Paragraph (a) of this section applies to ship repair only. Paragraph (b) of this section applies to shipbreaking only.

(a) *Requirements applicable to ship repairing only.* (1) Pipe lines which may convey hazardous substances into the spaces certified "Safe For Men—Safe For Fire" shall be disconnected or blanked off, or other positive means shall be used to prevent discharge of hazardous substances from entering the space. Manholes and other closures which were secured when tests were made shall remain secured. If such manholes or other closures are opened or any manipulation of valves takes place which tends to alter existing conditions, work in the affected spaces or areas shall be stopped and not resumed until such times as the areas have been retested and again certified "Safe For Men—Safe For Fire" in accordance with the requirements of § 1915.14(a).

(2) Before hot work is commenced on the weather deck over spaces which, under these regulations, are

not required to be gas freed or inerted, all valves, closures and vents, except those which are vented up masts, connecting with nongas free tanks or compartments below, shall be closed. Valves, closures and vents shall not be opened until hot work is completed unless the hot work is stopped and the work location posted as unsafe for fire. The latter notice shall not be removed nor hot work resumed until the area is again made safe.

(3) The employer shall inform masters and chief engineers of vessels of the provisions of this section and shall confirm that they are aware of their responsibilities for seeing that their crews understand and obey all warning signs, tags, and the limitations stated on the marine chemist's certificates.

(4) When conditions in a tank are such that there is a possibility of hazardous vapor being released from residues or other sources after a marine chemist's certificate has been issued, a competent person shall make tests to insure that the gas-free condition is maintained irrespective of whether hot work is being performed in the tank. When the competent person finds that atmospheric conditions have altered, work shall be stopped and a new marine chemist's certificate in accordance with the requirements of § 1915.14(a) shall be obtained before work is resumed.

(5) Before hot work is begun on any metal covered with preservative coatings, the requirements of § 1915.53 shall be met.

(b) *Requirements applicable to shipbreaking only.* (1) During the performance of hot work from open decks or in tanks or compartments from which the overhead has been completely removed, on the boundaries of spaces described in § 1915.14(d), other than those filled with water, the competent person shall make frequent tests to ensure that the inert atmosphere is being maintained or that the concentration of flammable vapors remains below ten (10) percent of the lower explosive limit.

(2) When conditions in spaces below decks described in § 1915.14(a)(1) and (2) are such that there is a possibility of hazardous vapors being released from residues or other sources, after a Marine Chemist's certificate has been issued, a competent person shall make tests to ensure that the gas free condition is maintained irrespective of whether hot work is being performed in or on the aforementioned spaces. When the competent person finds that the atmospheric conditions have altered, work shall be stopped and a new Marine Chemist's certificate in accordance with § 1915.14(a)(1) and (2) shall be obtained, before work is resumed.

§ 1915.16 Warning signs.

The provisions of this section apply to ship repairing only.

(a) Except as provided in paragraph (c) of this section, all tanks, compartments, or spaces which have been certified "Safe For Men—Not Safe For Fire," or "Not Safe For Men—Not Safe For Fire" shall be plainly and conspicuously marked with paint or signs indicating that no hot work shall be performed on such tanks, compartments, or spaces or in the vicinity thereof.

(b) Except as provided in paragraph (c) of this section, all tanks, compartments or spaces which have been inerted with gas or certified "Not Safe For Men—Safe For Fire" shall be plainly and conspicuously marked with paint or signs indicating that the tank, compartment or space contains a gas which will not support life or is hazardous to employees.

(c) The warning marks or signs required by paragraphs (a) and (b) of this section need not be posted on individual tanks, compartments or spaces if the entire vessel has been certified "Safe For Men—Not Safe For Fire," "Not Safe For Men—Not Safe For Fire," or if the entire vessel has been inerted or certified "Not Safe For Men—Safe For Fire," and if a sign to this effect is conspicuously posted at the gangway and at all other means of access to the vessel.

Subpart C—Surface Preparation and Preservation

§ 1915.31 Scope and application of subpart.

The standards contained in this subpart shall apply to ship repairing and

shipbuilding and shall not apply to shipbreaking.

§ 1915.32 Toxic cleaning solvents.

(a) When toxic solvents are used, the employer shall employ one or more of the following measures to safeguard the health of employees exposed to these solvents.

(1) The cleaning operation shall be completely enclosed to prevent the escape of vapor into the working space.

(2) Either natural ventilation or mechanical exhaust ventilation shall be used to remove the vapor at the source and to dilute the concentration of vapors in the working space to a concentration which is safe for the entire work period.

(3) Employees shall be protected against toxic vapors by suitable respiratory protective equipment in accordance with the requirements of § 1915.152 (a) and (c), and, where necessary, against exposure of skin and eyes to contact with toxic solvents and their vapors by suitable clothing and equipment.

(b) The principles in the threshold limit values to which attention is directed in § 1915.4 will be used by the Department of Labor in enforcement proceedings in defining a safe concentration of air contaminants.

(c) When flammable solvents are used, precautions shall be taken in accordance with the requirements of § 1915.36.

§ 1915.33 Chemical paint and preservative removers.

(a) Employees shall be protected against skin contact during the handling and application of chemical paint and preservative removers and shall be protected against eye injury by goggles or face shields in accordance with the requirements of § 1915.151 (a) and (b).

(b) When using flammable paint and preservative removers, precautions shall be taken in accordance with the requirements of § 1915.36.

(c) When using chemical paint and preservative removers which contain volatile and toxic solvents, such as benzol, acetone and amyl acetate, the provisions of § 1915.32 shall be applicable.

(d) When using paint and rust removers containing strong acids or alkalies, employees shall be protected by suitable face shields to prevent chemical burns on the face and neck.

(e) When steam guns are used, all employees working within range of the blast shall be protected by suitable face shields. Metal parts of the steam gun itself shall be insulated to protect the operator against heat burns.

§ 1915.34 Mechanical paint removers.

(a) *Power tools.* (1) Employees engaged in the removal of paints, preservatives, rusts or other coatings by means of power tools shall be protected against eye injury by goggles or face shields in accordance with the requirements of § 1915.151(a).

(2) All portable rotating tools used for the removal of paints, preservatives, rusts or other coatings shall be adequately guarded to protect both the operator and nearby workers from flying missiles.

(3) Portable electric tools shall be grounded in accordance with the requirements of § 1915.132.

(4) In a confined space, mechanical exhaust ventilation sufficient to keep the dust concentration to a minimum shall be used, or employees shall be protected by respiratory protective equipment in accordance with the requirements of § 1915.152 (a) and (d).

(b) *Flame removal.* (1) Hardened preservative coatings shall not be removed by flame in enclosed spaces unless the employees exposed to fumes are protected by air line respirators in accordance with the requirements of § 1915.152(a). Employees performing such an operation in the open air, and those exposed to the resulting fumes, shall be protected by a fume filter type respirator in accordance with requirements of paragraphs (a) and (d)(2)(iv) of § 1915.152.

(2) Flame or heat shall not be used to remove soft and greasy preservative coatings.

(c) *Abrasive blasting*—(1) *Equipment.* Hoses and fittings used for abrasive blasting shall meet the following requirements:

(i) *Hoses.* Hose of a type to prevent shocks from static electricity shall be used.

(ii) *Hose couplings.* Hose lengths shall be joined by metal couplings secured to the outside of the hose to avoid erosion and weakening of the couplings.

(iii) *Nozzles.* Nozzles shall be attached to the hose by fittings that will prevent the nozzle from unintentionally becoming disengaged. Nozzle attachments shall be of metal and shall fit onto the hose externally.

(iv) *Dead man control.* A dead man control device shall be provided at the nozzle end of the blasting hose either to provide direct cutoff or to signal the pot tender by means of a visual and audible signal to cut off the flow, in the event the blaster loses control of the hose. The pot tender shall be available at all times to respond immediately to the signal.

(2) *Replacement.* Hoses and all fittings used for abrasive blasting shall be inspected frequently to insure timely replacement before an unsafe amount of wear has occurred.

(3) *Personal protective equipment.* (i) Abrasive blasters working in enclosed spaces shall be protected by hoods and air fed respirators or by air helmets of a positive pressure type in accordance with the requirements of § 1915.152(a).

(ii) Abrasive blasters working in the open shall be protected as indicated in paragraph (c)(3)(i) of this section except that when synthetic abrasives containing less than one percent free silica are used jointly, filter type respirators approved jointly by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration for exposure to lead dusts may be used in accordance with § 1915.152(a) and (d).

(iii) Employees, other than blasters, including machine tenders and abrasive recovery men, working in areas where unsafe concentrations of abrasive materials and dusts are present shall be protected by eye and respiratory protective equipment in accordance with the requirements of §§ 1915.151(a) and (b) and 1915.152(a) and (d).

(iv) The blaster shall be protected against injury from exposure to the blast by appropriate protective clothing, including gloves.

(v) Since surges from drops in pressure in the hose line can be of sufficient proportions to throw the blaster off the staging, the blaster shall be protected by a safety belt when blasting is being done from elevations where adequate protection against falling cannot be provided by railings.

§ 1915.35 Painting.

(a) *Paints mixed with toxic vehicles or solvents.* (1) When paints mixed with toxic vehicles or solvents are sprayed, the following conditions shall apply:

(i) In confined spaces, employees continuously exposed to such spraying shall be protected by air line respirators in accordance with the requirements of § 1915.152(a).

(ii) In tanks or compartments, employees continuously exposed to such spraying shall be protected by air line respirators in accordance with the requirements of § 1915.152(a). Where mechanical ventilation is provided, employees shall be protected by respirators in accordance with the requirements of § 1915.152 (a) and (e).

(iii) In large and well ventilated areas, employees exposed to such spraying shall be protected by respirators in accordance with the requirements of § 1915.152 (a) and (e).

(2) Where brush application of paints with toxic solvents is done in confined spaces, or other areas where lack of ventilation creates a hazard, employees shall be protected by filter respirators in accordance with the requirements of § 1915.152(a) and (c).

(3) When flammable paints or vehicles are used, precautions shall be taken in accordance with the requirements of § 1915.36.

(4) The metallic parts of air moving devices, including fans, blowers, and jet-type air movers, and all duct work shall be electrically bonded to the vessel's structure.

(b) *Paints and tank coatings dissolved in highly volatile, toxic and flammable solvents.* Several organic coatings, adhesives and resins are dis-

solved in highly toxic, flammable and explosive solvents with flash points below 80° F. Work involving such materials shall be done only when all of the following special precautions have been taken:

(1) Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten (10) percent of the lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.

(2) If the ventilation fails or if the concentration of solvent vapors rises above ten (10) percent of the lower explosive limit, painting shall be stopped and the compartment shall be evacuated until the concentration again falls below ten (10) percent of the lower explosive limit. If the concentration does not fall when painting is stopped, additional ventilation to bring the concentration down to ten (10) percent of the lower explosive limit shall be provided.

(3) Ventilation shall be continued after the completion of painting until the space or compartment is gas free. The final determination as to whether the space or compartment is gas free shall be made after the ventilating equipment has been shut off for at least 10 minutes.

(4) Exhaust ducts shall discharge clear of working areas and away from sources of possible ignition. Periodic tests shall be made to ensure that the exhausted vapors are not accumulating in other areas within or around the vessel or dry dock.

(5) All motors and control equipment shall be of the explosion-proof type. Fans shall have nonferrous blades. Portable air ducts shall also be of nonferrous materials. All motors and associated control equipment shall be properly maintained and grounded.

(6) Only non-sparking paint buckets, spray guns and tools shall be used. Metal parts of paint brushes and rollers shall be insulated. Staging shall be erected in a manner which ensures that it is non-sparking.

(7) Only explosion proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration or the U.S. Coast Guard, shall be used.

(8) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

(9) The face, eyes, head, hands, and all other exposed parts of the bodies of employees handling such highly volatile paints shall be protected. All footwear shall be non-sparking, such as rubbers, rubber boots or rubber soled shoes without nails. Coveralls or other outer clothing shall be of cotton. Rubber, rather than plastic, gloves shall be used because of the danger of static sparks.

(10) No matches, lighted cigarettes, cigars, or pipes, and no cigarette lighters or ferrous articles shall be taken into the area where work is being done.

(11) All solvent drums taken into the compartment shall be placed on nonferrous surfaces and shall be grounded to the vessel. Metallic contact shall be maintained between containers and drums when materials are being transferred from one to another.

(12) Spray guns, paint pots, and metallic parts of connecting tubing shall be electrically bonded, and the bonded assembly shall be grounded to the vessel.

(13) All employees continuously in a compartment in which such painting is being performed, shall be protected by air line respirators in accordance with the requirements of § 1915.152(a) and by suitable protective clothing. Employees entering such compartments for a limited time shall be protected by filter cartridge type respirators in accordance with the requirements of § 1915.152 (a) and (e).

(14) All employees doing exterior paint spraying with such paints shall be protected by suitable filter cartridge type respirators in accordance with the requirements of § 1915.152 (a) and (e) and by suitable protective clothing.

§ 1915.36 Flammable liquids.

(a) In all cases when liquid solvents, paint and preservative removers, paints or vehicles, other than those covered by §1915.35(b), are capable of producing a flammable atmosphere under the conditions of use, the following precautions shall be taken:

(1) Smoking, open flames, arcs and spark-producing equipment shall be prohibited in the area.

(2) Ventilation shall be provided in sufficient quantities to keep the concentration of vapors below ten (10) percent of their lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.

(3) Scrapings and rags soaked with these materials shall be kept in a covered metal container.

(4) Only explosion proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the Mine Safety and Health Administration or the U.S. Coast Guard, shall be used.

(5) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty (50) feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

(6) Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use.

Subpart D—Welding, Cutting and Heating

§ 1915.51 Ventilation and protection in welding, cutting and heating.

(a) The provisions of this section shall apply to all ship repairing, shipbuilding, and shipbreaking operations; except that paragraph (e) of this section shall apply only to ship repairing and shipbuilding. Paragraph (g) of this section shall apply only to ship repairing.

(b) *Mechanical ventilation requirements.* (1) For purposes of this section, mechanical ventilation shall meet the following requirements:

(i) Mechanical ventilation shall consist of either general mechanical ventilation systems or local exhaust systems.

(ii) General mechanical ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits.

(iii) Local exhaust ventilation shall consist of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

(iv) Contaminated air exhausted from a working space shall be discharged into the open air or otherwise clear of the source of intake air.

(v) All air replacing that withdrawn shall be clean and respirable.

(vi) Oxygen shall not be used for ventilation purposes, comfort cooling, blowing dust or dirt from clothing, or for cleaning the work area.

(c) *Welding, cutting and heating in confined spaces.* (1) Except as provided in paragraphs (c)(3) and (d)(2) of this section either general ventilation meeting the requirements of paragraph (b) of this section shall be provided whenever welding, cutting or heating is performed in a confined space.

(2) The means of access shall be provided to a confined space and ventilation ducts to this space shall be arranged in accordance with § 1915.76(b)(1) and (2).

(3) When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space shall be protected by air line respirators in accordance with the requirements of § 1915.152(a), and an employee on the outside of such a confined space shall be assigned to maintain communication with those working within it and to aid them in an emergency.

(d) *Welding, cutting or heating of metals of toxic significance.* (1) Welding, cutting or heating in any enclosed

spaces aboard the vessel involving the metals specified below shall be performed with either general mechanical or local exhaust ventilation meeting the requirements of paragraph (a) of this section:

(i) Zinc-bearing base or filler metals or metals coated with zinc-bearing materials.

(ii) Lead base metals.

(iii) Cadmium-bearing filler materials.

(iv) Chromium-bearing metals or metals coated with chromium-bearing materials.

(2) Welding, cutting or heating in any enclosed spaces aboard the vessel involving the metals specified below shall be performed with local exhaust ventilation in accordance with the requirements of paragraph (b) of this section or employees shall be protected by air line respirators in accordance with the requirements of § 1915.152(a):

(i) Metals containing lead, other than as an inpurity, or metals coated with lead-bearing materials.

(ii) Cadmium-bearing or cadmium coated base metals.

(iii) Metals coated with mercury-bearing metals.

(iv) Beryllium-containing base or filler metals. Because of its high toxicity, work involving beryllium shall be done with both local exhaust ventilation and air line respirators.

(3) Employees performing such operations in the open air shall be protected by filter type respirators in accordance with the requirements of paragraphs (a) and (d)(2)(iv) of § 1915.152, except that employees performing such operations on beryllium-containing base or filler metals shall be protected by air line respirators in accordance with the requirements of § 1915.152(a).

(4) Other employees exposed to the same atmosphere as the welders or burners shall be protected in the same manner as the welder or burner.

(e) *Inert-gas metal-arc welding.* (1) Since the inert-gas metal-arc welding process involves the production of ultraviolet radiation of intensities of 5 to 30 times that produced during shielded metal-arc welding, the decomposition of chlorinated solvents by ultraviolet rays, and the liberation of toxic fumes and gases, employees shall not be permitted to engage in, or be exposed to the process until the following special precautions have been taken:

(i) The use of chlorinated solvents shall be kept at least two hundred (200) feet from the exposed arc, and surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is permitted on such surfaces.

(ii) Helpers and other employees in the area not protected from the arc by screening as provided in § 1915.56(e) shall be protected by filter lenses meeting the requirements of § 1915.151 (a) and (c). When two or more welders are exposed to each other's arc, filter lens goggles of a suitable type meeting the requirements of § 1915.151 (a) and (c) shall be worn under welding helmets or hand shields to protect the welder against flashes and radiant energy when either the helmet is lifted or the shield is removed.

(iii) Welders and other employees who are exposed to radiation shall be suitably protected so that the skin is covered completely to prevent burns and other damage by ultraviolet rays. Welding helmets and hand shields shall be free of leaks and openings, and free of highly reflective surfaces.

(iv) When inert-gas metal-arc welding is being performed on stainless steel, the requirements of paragraph (d)(2) of this section shall be met to protect against dangerous concentrations of nitrogen dioxide.

(f) *General welding, cutting, and heating.* (1) Welding, cutting and heating not involving conditions or materials described in paragraph (c), (d) or (e) of this section may normally be done without mechanical ventilation or respiratory protective equipment, but where, because of unusual physical or atmospheric conditions, an unsafe accumulation of contaminants exists, suitable mechanical ventilation or respiratory protective equipment shall be provided.

(2) Employees performing any type of welding, cutting or heating shall be protected by suitable eye protective equipment in accordance with the requirements of § 1915.151 (a) and (c).

(g) *Residues and cargoes of metallic ores.* (1) Residues and cargoes of metallic ores of toxic significance shall be removed from the area or protected from the heat before ship repair work which involves welding, cutting or heating is begun.

§ 1915.52 Fire prevention.[1]

(a) Paragraph (a) applies to ship repairing, shipbuilding and shipbreaking, and paragraph (b) applies to ship repairing and shipbuilding only.

(1) When practical, objects to be welded, cut or heated shall be moved to a designated safe location or, if the object to be welded, cut or heated cannot be readily moved, all movable fire hazards including residues of combustible bulk cargoes in the vicinity shall be taken to a safe place.

(2) If the object to be welded, cut or heated cannot be moved and if all the fire hazards including combustible cargoes cannot be removed, positive means shall be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them.

(3) When welding, cutting or heating is performed on tank shells, decks, overheads and bulkheads, since direct penetration of sparks or heat tranfer may introduce a fire hazard to an adjacent compartment, the same precautions shall be taken on the opposite side as are taken on the side on which the welding is being performed.

(4) In order to eliminate the possibility of fire in confined spaces as a result of gas escaping through leaking or improperly closed torch valves, the gas supply to the torch shall be positively shut off at some point outside the confined space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch hour. Overnight and at the change of shifts, the torch and hose shall be removed from the confined space. Open end fuel gas and oxygen hoses shall be immediately removed from confined spaces when they are disconnected from the torch or other gas consuming device.

(b) The provisions of this paragraph shall apply to ship repairing and shipbuilding only.

(1) No welding, cutting or heating shall be done where the application of flammable paints or the presence of other flammable compounds or of heavy dust concentrate creates a hazard.

(2) Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use. In addition, when hot work is being performed aboard a vessel and pressure is not available on the vessel's fire system, an auxiliary supply of water shall be made available where practicable, consistent with avoiding freezing of the lines or hose.

(3) When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed and for a sufficient period of time after completion of the work to insure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the fire fighting equipment provided is to be used.

(4) Vaporizing liquid extinguishers shall not be used in enclosed spaces.

(5) Except when the contents are being removed or transferred, drums, pails, and other containers which contain or have contained flammable liquids shall be kept closed. Empty containers shall be removed to a safe area apart from hot work operations, or open flames.

(c) In all cases, suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use. Personnel assigned to contain fires within controllable limits shall be instructed as to the specific anticipated fire hazards and how the fire fighting equipment provided is to be used. The provisions of this paragraph shall apply to shipbreaking only.

[1] 46 CFR 146.02-20 contains Coast Guard regulations pertaining to welding and cutting while explosives and dangerous cargoes are being handled.

§ 1915.53 Welding, cutting and heating in way of preservative coatings.

(a) The provisions in this section shall apply to all ship repairing, shipbuilding and shipbreaking operations except for paragraphs (e) and (f) of this section which shall apply to ship repairing and shipbulding and shall not apply to shipbreaking.

(b) Before welding, cutting or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

(c) Precautions shall be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable they shall be stripped from the area to be heated to prevent ignition, or, where shipbreaking is involved, the coatings may be burned away under controlled conditions. A 1½ inch or larger fire hose with fog nozzle, which has been uncoiled and placed under pressure, shall be immediately available for instant use in the immediate vicinity, consistent with avoiding freezing of the hose.

(d) *Protection against toxic preservative coatings.* (1) In enclosed spaces, all surfaces covered with toxic preservatives shall be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application or the employees shall be protected by air line respirators meeting the requirements of § 1915.152(a).

(2) In the open air, employees shall be protected by a filter type respirator in accordance with the requirements of § 1915.152 (a) and (d).

(e) Before welding, cutting or heating is commenced in enclosed spaces on metals covered by soft and greasy preservatives, the following precautions shall be taken:

(1) A competent person shall test the atmosphere in the space to ensure that it does not contain explosive vapors, since there is a possibility that some soft and greasy preservatives may have flash points below temperatures which may be expected to occur naturally. If such vapors are determined to be present, no hot work shall be commenced until such precautions have been taken as will ensure that the welding, cutting or heating can be performed in safety.

(2) The preservative coatings shall be removed for a sufficient distance from the area to be heated to ensure that the temperature of the unstripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heated area may be used to limit the size of the area required to be cleaned. The prohibition contained in § 1915.34(b)(2) shall apply.

(f) Immediately after welding, cutting or heating is commenced in enclosed spaces on metal covered by soft and greasy preservatives, and at frequent intervals thereafter, a competent person shall make tests to ensure that no flammable vapors are being produced by the coatings. If such vapors are determined to be present, the operation shall be stopped immediately and shall not be resumed until such additional precautions have been taken as are necessary to ensure that the operation can be resumed safely.

§ 1915.54 Welding, cutting and heating of hollow metal containers and structures not covered by § 1915.12.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Drums, containers, or hollow structures which have contained flammable substances shall, before welding, cutting, or heating is undertaken on them, either be filled with water or thoroughly cleaned of such substances and ventilated and tested.

(b) Before heat is applied to a drum, container, or hollow structure, a vent or opening shall be provided for the release of any built-up pressure during the application of heat.

(c) Before welding, cutting, heating or brazing is begun on structural voids such as skegs, bilge keels, fair waters, masts, booms, support stanchions, pipe stanchions or railings, a competent person shall inspect the object and, if necessary, test it for the presence of flammable liquids or vapors. If flam-

mable liquids or vapors are present, the object shall be made safe.

(d) Objects such as those listed in paragraph (c) of this section shall also be inspected to determine whether water or other non-flammable liquids are present which, when heated, would build up excessive pressure. If such liquids are determined to be present, the object shall be vented, cooled, or otherwise made safe during the application of heat.

(e) Jacketed vessels shall be vented before and during welding, cutting or heating operations in order to release any pressure which may build up during the application of heat.

§ 1915.55 Gas welding and cutting.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) *Transporting, moving and storing compressed gas cylinders.* (1) Valve protection caps shall be in place and secure. Oil shall not be used to lubricate protection caps.

(2) When cylinders are hoisted, they shall be secured on a cradle, slingboard or pallet. They shall not be hoisted by means of magnets or choker slings.

(3) Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dropped, struck, or permitted to strike each other violently.

(4) When cylinders are transported by vehicle, they shall be secured in position.

(5) Valve protection caps shall not be used for lifting cylinders from one vertical position to another. Bars shall not be used under valves or valve protection caps to pry cylinders loose when frozen. Warm, not boiling, water shall be used to thaw cylinders loose.

(6) Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators shall be removed and valve protection caps put in place before cylinders are moved.

(7) A suitable cylinder truck, chain, or other steadying device shall be used to keep cylinders from being knocked over while in use.

(8) When work is finished, when cylinders are empty or when cylinders are moved at any time, the cylinder valves shall be closed.

(9) Acetylene cylinders shall be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

(b) *Placing cylinders.* (1) Cylinders shall be kept far enough away from the actual welding or cutting operation so that sparks, hot slag or flame will not reach them. When this is impractical, fire resistant shields shall be provided.

(2) Cylinders shall be placed where they cannot become part of an electrical circuit. Electrodes shall not be struck against a cylinder to strike an arc.

(3) Fuel gas cylinders shall be placed with valve end up whenever they are in use. They shall not be placed in a location where they would be subject to open flame, hot metal, or other sources of artificial heat.

(4) Cylinders containing oxygen or acetylene or other fuel gas shall not be taken into confined spaces.

(c) *Treatment of cylinders.* (1) Cylinders, whether full or empty, shall not be used as rollers or supports.

(2) No person other than the gas supplier shall attempt to mix gases in a cylinder. No one except the owner of the cylinder or person authorized by him shall refill a cylinder. No one shall use a cylinder's contents for purposes other than those intended by the supplier. Only cylinders bearing Interstate Commerce Commission identification and inspection markings shall be used.

(3) No damaged or defective cylinder shall be used.

(d) *Use of fuel gas.* The employer shall thoroughly instruct employees in the safe use of fuel gas, as follows:

(1) Before connecting a regulator to a cylinder valve, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would

reach welding work, sparks, flame or other possible sources of ignition.

(2) The cylinder valve shall always be opened slowly to prevent damage to the regulator. To permit quick closing, valves on fuel gas cylinders shall not be opened more than 1½ turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench shall always be available for immediate use. Nothing shall be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

(3) Fuel gas shall not be used from cylinders through torches or other devices which are equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

(4) Before a regulator is removed from a cylinder valve, the cylinder valve shall always be closed and the gas released from the regulator.

(5) If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued, and it shall be properly tagged and removed from the vessel. In the event that fuel gas should leak from the cylinder valve rather than from the valve stem and the gas cannot be shut off, the cylinder shall be properly tagged and removed from the vessel. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the vessel.

(6) If a leak should develop at a fuse plug or other safety device, the cylinder shall be removed from the vessel

(e) *Fuel gas and oxygen manifolds.* (1) Fuel gas and oxygen manifolds shall bear the name of the substance they contain in letters at least one (1) inch high which shall be either painted on the manifold or on a sign permanently attached to it.

(2) Fuel gas and oxygen manifolds shall be placed in safe and accessible locations in the open air. They shall not be located within enclosed spaces.

(3) Manifold hose connections, including both ends of the supply hose that lead to the manifold, shall be such that the hose cannot be interchanged between fuel gas and oxygen manifolds and supply header connections. Adapters shall not be used to permit the interchange of hose. Hose connections shall be kept free of grease and oil.

(4) When not in use, manifold and header hose connections shall be capped.

(5) Nothing shall be placed on top of a manifold, when in use, which will damage the manifold or interfere with the quick closing of the valves.

(f) *Hose.* (1) Fuel gas hose and oxygen hose shall be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel has hoses shall not be interchangeable. A single hose having more than one gas passage, a wall failure of which would permit the flow of one gas into the other gas passage, shall not be used.

(2) When parallel sections of oxygen and fuel gas hose are taped together not more than 4 inches out of 8 inches shall be covered by tape.

(3) All hose carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion or be in any way harmful to employees, shall be inspected at the beginning of each shift. Defective hose shall be removed from service.

(4) Hose which has been subjected to flashback or which shows evidence of severe wear or damage shall be tested to twice the normal pressure to which it is subject, but in no case less than two hundered (200) psi. Defective hose or hose in doubtful condition shall not be used.

(5) Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

(6) Boxes used for the stowage of gas hose shall be ventilated.

(g) *Torches.* (1) Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills or other devices designed for such purpose.

(2) Torches shall be inspected at the beginning of each shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used.

(3) Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work.

(h) *Pressure regulators.* Oxygen and fuel gas pressure regulators including their related gauges shall be in proper working order while in use.

§ 1915.56 Arc welding and cutting.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) *Manual electrode holders.* (1) Only manual electrode holders which are specifically designed for arc welding and cutting and are of a capacity capable of safely handling the maximum rated current required by the electrodes shall be used.

(2) Any current carrying parts passing through the portion of the holder which the arc welder or cutter grips in his hand, and the outer surfaces of the jaws of the holder, shall be fully insulated against the maximum voltage encountered to ground.

(b) *Welding cables and connectors.* (1) All arc welding and cutting cables shall be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, taking into account the duty cycle under which the arc welder or cutter is working.

(2) Only cable free from repair or splices for a minimum distance of ten (10) feet from the cable end to which the electrode holder is connected shall be used, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.

(3) When it becomes necessary to connect or splice lengths of cable one to another, substantial insulated connectors of a capacity at least equivalent to that of the cable shall be used. If connections are effected by means of cable lugs, they shall be securely fastened together to give good electrical contact, and the exposed metal parts of the lugs shall be completely insulated.

(4) Cables in poor repair shall not be used. When a cable other than the cable lead referred to in paragraph (b)(2) of this section becomes worn to the extent of exposing bare conductors, the portion thus exposed shall be protected by means of rubber and friction tapes or other equivalent insulation.

(c) *Ground returns and machine grounding.* (1) A ground return cable shall have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding or cutting unit which it services. When a single ground return cable services more than one unit, its safe current carrying capacity shall equal or exceed the total specified maximum output capacities of all the units which it services.

(2) Structures or pipe lines, except pipe lines containing gases of flammable liquids or conduits containing electrical circuits, may be used as part of the ground return circuit, provided that the pipe or structure has a current carrying capacity equal to that required by paragraph (c)(1) of this section.

(3) When a structure or pipe line is employed as a ground return circuit, it shall be determined that the required electrical contact exists at all joints. The generation of an arc, sparks or heat at any point shall cause rejection of the structure as a ground circuit.

(4) When a structure or pipe line is continuously employed as a ground return circuit, all joints shall be bonded, and periodic inspections shall be conducted to ensure that no condition of electrolysis or fire hazard exists by virtue of such use.

(5) The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. Grounding circuits, other than by means of the vessel's structure, shall be checked to ensure that the circuit between the ground and the grounded

power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(6) All ground connections shall be inspected to ensure that they are mechanically strong and electrically adequate for the required current.

(d) *Operating instructions.* Employers shall instruct employees in the safe means of arc welding and cutting as follows:

(1) When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects.

(2) Hot electrode holders shall not be dipped in water, since to do so may expose the arc welder or cutter to electric shock.

(3) When the arc welder or cutter has occasion to leave his work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, the power supply switch to the equipment shall be opened.

(4) Any faulty or defective equipment shall be reported to the supervisor.

(e) *Shielding.* Whenever practicable, all arc welding and cutting operations shall be shielded by noncombustible or flame-proof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

§ 1915.57 Uses of fissionable material in ship repairing and shipbuilding.

The provisions of this section apply to ship repairing and shipbuilding only.

(a) In activities involving the use of and exposure to sources of ionizing radiation not only on conventionally powered but also on nuclear powered vessels, the applicable provisions of the Nuclear Regulatory Commission's Standards for Protection Against Radiation (10 CFR Part 20), relating to protection against occupational radiation exposure, shall apply.

(b) Any activity which involves the use of radiocative material, whether or not under license from the Nuclear Regulatory Commission, shall be performed by competent persons specially trained in the proper and safe operation of such equipment. In the case of materials used under Commission license, only persons actually licensed, or competent persons under direction and supervision of the licensee, shall perform such work.

Subpart E—Scaffolds, Ladders and Other Working Surfaces

§ 1915.71 Scaffolds or staging.

(a) *Scope and application.* The provisions of this section shall apply to all ship repairing, shipbuilding and shipbreaking operations except that paragraphs (b)(8) through (b)(10) and paragraphs (c) through (f) of this section shall only apply to ship repairing and shipbuilding operations and shall not apply to shipbreaking.

(b) *General requirements.* (1) All scaffolds and their supports whether of lumber, steel or other material, shall be capable of supporting the load they are designed to carry with a safety factor of not less than four (4).

(2) All lumber used in the construction of scaffolds shall be spruce, fir, long leaf yellow pine, Oregon pine or wood of equal strength. The use of hemlock, short leaf yellow pine, or short fiber lumber is prohibited.

(3) Lumber dimensions as given in this subpart are nominal except where given in fractions of an inch.

(4) All lumber used in the construction of scaffolds shall be sound, straight-grained, free from cross grain, shakes and large, loose or dead knots. It shall also be free from dry rot, large checks, worm holes or other defects which impair its strength or durability.

(5) Scaffolds shall be maintained in a safe and secure condition. Any component of the scaffold which is broken, burned or otherwise defective shall be replaced.

(6) Barrels, boxes, cans, loose bricks, or other unstable objects shall not be used as working platforms or for the support of planking intended as scaffolds or working platforms.

(7) No scaffold shall be erected, moved, dismantled or altered except

under the supervision of competent persons.

(8) No welding, burning, riveting or open flame work shall be performed on any staging suspended by means of fiber rope.

(9) Lifting bridles on working platforms suspended from cranes shall consist of four legs so attached that the stability of the platform is assured.

(10) Unless the crane hook has a safety latch or is moused, the lifting bridles on working platforms suspended from cranes shall be attached by shackles to the lower lifting block or other positive means shall be taken to prevent them from becoming accidentally disengaged from the crane hook.

(c) *Independent pole wood scaffolds.* (1) All pole uprights shall be set plump. Poles shall rest on a foundation of sufficient size and strength to distribute the loan and to prevent displacement.

(2) In light-duty scaffolds, not more than 24 feet in height, poles may be spliced by overlapping the ends not less than 4 feet and securely nailing them together. A substantial cleat shall be nailed to the lower section to form a support for the upper section except when bolted connections are used.

(3) All other poles to be spliced shall be squared at the ends of each splice, abutted, and rigidly fastened together by not less than two cleats securely nailed or bolted thereto. Each cleat shall overlap each pole end by at least 24 inches and shall have a width equal to the face of the pole to which it is attached. The combined cross sectional area of the cleats shall be not less than the cross sectional area of the pole.

(4) Ledgers shall extend over two consecutive pole spaces and shall overlap the poles at each end by not less than 4 inches. They shall be left in position to brace the poles as the platform is raised with the progress of the work. Ledgers shall be level and shall be securely nailed or bolted to each pole and shall be placed against the inside face of each pole.

(5) All bearers shall be set with their greater dimension vertical and shall extend beyond the ledgers upon which they rest.

(6) Diagonal bracing shall be provided between the parallel poles, and cross bracing shall be provided between the inner and outer poles or from the outer poles to the ground.

(7) Minimum dimensions and spacing of members shall be in accordance with Table E-1 in § 1915.118.

(8) Platform planking shall be in accordance with the requirements of paragraph (i) of this section.

(9) Backrails and toeboards shall be in accordance with the requirements of paragraph (j) of this section.

(d) *Independent pole metal scaffolds.* (1) Metal scaffold members shall be maintained in good repair and free of corrosion.

(2) All vertical and horizontal members shall be fastened together with a coupler or locking device which will form a positive connection. The locking device shall be of a type which has no loose parts.

(3) Posts shall be kept plumb during erection and the scaffold shall be subsequently kept plumb and rigid by means of adequate bracing.

(4) Posts shall be fitted with bases supported on a firm foundation to distribute the load. When wooden sills are used, the bases shall be fastened thereto.

(5) Bearers shall be located at each set of posts, at each level, and at each intermediate level where working platforms are installed.

(6) Tubular bracing shall be applied both lengthwise and crosswise as required.

(7) Platform planking shall be in accordance with the requirements of paragraph (h) of this section.

(8) Backrails and toeboards shall be in accordance with the requirements of paragraph (j) of this section.

(e) *Wood trestle and extension trestle ladders.* (1) The use of trestle ladders, or extension sections or base sections of extension trestle ladders longer than 20 feet is prohibited. The total height of base and extension may, however, be more than 20 feet.

(2) The minimum dimensions of the side rails of the trestle ladder, or the base sections of the extension trestle ladder, shall be as follows:

(i) Ladders up to and including those 16 feet long shall have side rails of not less than 1⁵⁄₁₆ x 2¾ inch lumber.

(ii) Ladders over 16 feet long and up to and including those 20 feet long shall have side tails of not less than 1⁵⁄₁₆ x 3 inch lumber.

(3) The side rails of the extension section of the extension trestle ladder shall be parallel and shall have minimum dimensions as follows:

(i) Ladders up to and including 12 feet long shall have side rails of not less than 1⁵⁄₁₆ x 2¼ inch lumber.

(ii) Ladders over 12 feet long and up to and including those 16 feet long shall have side rails of not less than 1⁵⁄₁₆ x 2½ inch lumber.

(iii) Ladders over 16 feet long and up to and including those 20 feet long shall have side rails of not less than 1⁵⁄₁₆ x 2¾ inch lumber.

(4) Trestle ladders and base sections of extension trestle ladders shall be so spread that when in an open position the spread of the trestle at the bottom, inside to inside, shall be not less than 5½ inches per foot of the length of the ladder.

(5) The width between the side rails at the bottom of the trestle ladder or of the base section of the extension trestle ladder shall be not less than 21 inches for all ladders and sections 6 feet or less in length. For longer lengths of ladder, the width shall be increased at least 1 inch for each additional foot of length. The width between the side rails of the extension section of the trestle ladder shall be not less than 12 inches.

(6) In order to limit spreading, the top ends of the side rails of both the trestle ladder and of the base section of the extension trestle ladder shall be beveled, or of equivalent construction, and shall be provided with a metal hinge.

(7) A metal spreader or locking device to hold the front and back sections in an open position, and to hold the extension section securely in the elevated position, shall be a component of each trestle ladder or extension ladder.

(8) Rungs shall be parallel and level. On the trestle ladder, or on the base section of the extension trestle ladder, rungs shall be spaced not less than 8 inches nor more than 18 inches apart; on the extension section of the extension trestle ladder, rungs shall be spaced not less than 6 inches nor more than 12 inches apart.

(9) Platform planking shall be in accordance with the requirements of paragraph (i) of this section, except that the width of the platform planking shall not exceed the distance between the siderails.

(10) Backrails and toeboards shall be in accordance with the requirements of paragraph (j) of this section.

(f) *Painters' suspended scaffolds.* (1) The supporting hooks of swinging scaffolds shall be constructed to be equivalent in strength to mild steel or wrought iron, shall be forged with care, shall be not less than ⅞ inch in diameter, and shall be secured to a safe anchorage at all times.

(2) The ropes supporting a swinging scaffold shall be equivalent in strength to first-grade ¾ inch diameter manila rope properly rigged into a set of standard 6 inch blocks consisting of at least one double and one single block.

(3) Manila and wire ropes shall be carefully examined before each operation and thereafter as frequently as may be necessary to ensure their safe condition.

(4) Each end of the scaffold platform shall be supported by a wrought iron or mild steel stirrup or hanger, which in turn is supported by the suspension ropes.

(5) Stirrups shall be constructed so as to be equivalent in strength to wrought iron ¾ inch in diameter.

(6) The stirrups shall be formed with a horizontal bottom member to support the platform, shall be provided with means to support the guardrail and midrail and shall have a loop or eye at the top for securing the supporting hook on the block.

(7) Two or more swinging scaffolds shall not at any time be combined into one by bridging the distance between them with planks or any other form of platform.

(8) No more than two men shall be permitted to work at one time on a swinging scaffold built to the minimum specifications contained in this paragraph. Where heavier construc-

tion is used, the number of men permitted to work on the scaffold shall be determined by the size and the safe working load of the scaffold.

(9) Backrails and toeboards shall be in accordance with the requirements of paragraph (j) of this section.

(10) The swinging scaffold platform shall be one of the three types described in paragraphs (f)(11), (12), and (13) of this section.

(11) The ladder-type platform consists of boards upon a horizontal ladder-like structure, referred to herein as the ladder, the side rails of which are parallel. If this type of platform is used the following requirements shall be met.

(i) The width between the side rails shall be no more than 20 inches.

(ii) The side rails of ladders in ladder-type platforms shall be equivalent in strength to a beam of clear straight-grained spruce of the dimensions contained in Table E–2 in § 1915.118.

(iii) The side rails shall be tied together with tie rods. The tie rods shall be not less than $^{5}/_{16}$ inch in diameter, located no more than 5 feet apart, pass through the rails, and be riveted up tight against washers at both ends.

(iv) The rungs shall be of straight-grained oak, ash, or hickory, not less than 1⅛ inches diameter, with ⅞ inch tenons mortised into the side rails not less than ⅞ inch and shall be spaced no more than 18 inches on centers.

(v) Flooring strips shall be spaced no more than ⅝ inch apart except at the side rails, where 1 inch spacing is permissible.

(vi) Flooring strips shall be cleated on their undersides.

(12) The plank-type platform consists of planks supported on the stirrups or hangers. If this type of platform is used, the following requirements shall be met:

(i) The planks of plank-type platforms shall be of not less than 2 x 10 inch lumber.

(ii) The platform shall be no more than 24 inches in width.

(iii) The planks shall be tied together by cleats of not less than 1 x 6 inch lumber, nailed on their undersides at intervals of not more than 4 feet.

(iv) The planks shall extend not less than 6 inches nor more than 18 inches beyond the supporting stirrups.

(v) A cleat shall be nailed across the platform on the underside at each end outside the stirrup to prevent the platform from slipping off the stirrup.

(vi) Stirrup supports shall be not more than 10 feet apart.

(13) The beam-type platform consists of longitudinal side stringers with cross beams set on edge and spaced not more than 4 feet apart on which longitudinal platform planks are laid. If this type platform is used, the following requirements shall be met:

(i) The side stringers shall be of sound, straight-grained lumber, free from knots, and of not less than 2 x 6 inch lumber, set on edge.

(ii) The stringers shall be supported on the stirrups with a clear span between stirrups of not more than 16 feet.

(iii) The stringers shall be bolted to the stirrups by U-bolts passing around the stirrups and bolted through the stringers with nuts drawn up tight on the inside face.

(iv) The ends of the stringers shall extend beyond the stirrups not less than 6 inches nor more than 12 inches at each end of the platform.

(v) The platform shall be supported on cross beams of 2 x 6 inch lumber between the side stringers securely nailed thereto and spaced not more than 4 feet on centers.

(vi) The platform shall be not more than 24 inches wide.

(vii) The platform shall be formed of boards ⅞ inch in thickness by not less than 6 inches in width, nailed tightly together, and extending to the outside face of the stringers.

(viii) The ends of all platform boards shall rest on the top of the cross beams, shall be securely nailed, and at no intermediate points in the length of the platform shall there be any cantilever ends.

(g) *Horse scaffolds.* (1) The minimum dimensions of lumber used in the construction of horses shall be in accordance with Table E–3 in § 1915.118.

(2) Horses constructed of materials other than lumber shall provide the strength, rigidity and security re-

quired of horses constructed of lumber.

(3) The lateral spread of the legs shall be equal to not less than one-third of the height of the horse.

(4) All horses shall be kept in good repair, and shall be properly secured when used in staging or in locations where they may be insecure.

(5) Platform planking shall be in accordance with the requirements of paragraph (i) of this section.

(6) Backrails and toeboards shall be in accordance with paragraph (j) of this section.

(h) *Other types of scaffolds.* (1) Scaffolds of a type for which specifications are not contained in this section shall meet the general requirements of paragraphs (b), (i), and (j) of this section, shall be in accordance with recognized principles of design and shall be constructed in accordance with accepted standards covering such equipment.

(i) *Scaffold or platform planking.* (1) Except as otherwise provided in paragraphs (f)(11) and (13) of this section, platform planking shall be of not less than 2 x 10 inch lumber. Platform planking shall be straight-grained and free from large or loose knots and may be either rough or dressed.

(2) Platforms of staging shall be not less than two 10 inch planks in width except in such cases as the structure of the vessel or the width of the trestle ladders make it impossible to provide such a width.

(3) Platform planking shall project beyond the supporting members at either end by at least 6 inches but in no case shall project more than 12 inches unless the planks are fastened to the supporting members.

(4) Table E–4 in § 1915.118 shall be used as a guide in determining safe loads for scaffold planks.

(j) *Backrails and toeboards.* (1) Scaffolding, staging, runways, or working platforms which are supported or suspended more than 5 feet above a solid surface, or at any distance above the water, shall be provided with a railing which has a top rail whose upper surface is from 42 to 45 inches above the upper surface of the staging, platform, or runway and a midrail located halfway between the upper rail and the staging, platform, or runway.

(2) Rails shall be of 2 x 4 inch lumber, flat bar or pipe. When used with rigid supports, taut wire or fiber rope of adequate strength may be used. If the distance between supports is more than 8 feet, rails shall be equivalent in strength to 2 x 4 inch lumber. Rails shall be firmly secured. Where exposed to hot work or chemicals, fiber rope rails shall not be used.

(3) Rails may be omitted where the structure of the vessel prevents their use. When rails are omitted, employees working more than 5 feet above solid surfaces shall be protected by safety belts and life lines meeting the requirements of § 1915.154(b), and employees working over water shall be protected by buoyant work vests meeting the requirements of § 1915.154(a).

(4) Employees working from swinging scaffolds which are triced out of a vertical line below their supports or from scaffolds on paint floats subject to surging, shall be protected against falling toward the vessel by a railing or a safety belt and line attached to the backrail.

(5) When necessary, to prevent tools and materials from falling on men below, toeboards of not less than 1 x 4 inch lumber shall be provided.

(k) *Access to staging.* (1) Access from below to staging more than 5 feet above a floor, deck or the ground shall consist of well secured stairways, cleated ramps, fixed or portable ladders meeting the applicable requirements of § 1915.72 or rigid type non-collapsible trestles with parallel and level rungs.

(2) Ramps and stairways shall be provided with 36-inch handrails with midrails.

(3) Ladders shall be so located or other means shall be taken so that it is not necessary for employees to step more than one foot from the ladder to any intermediate landing or platform.

(4) Ladders forming integral parts of prefabricated staging are deemed to meet the requirements of these regulations.

(5) Access from above to staging more than 3 feet below the point of access shall consist of a straight, portable ladder meeting the applicable requirements of § 1915.72 or a Jacob's

ladder properly secured, meeting the requirements of § 1915.74(d).

§ 1915.72 Ladders.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) *General requirements.* (1) The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall be immediately withdrawn from service. Inspection of metal ladders shall include checking for corrosion of interiors of open end, hollow rungs.

(2) When sections of ladders are spliced, the ends shall be abutted, and not fewer than 2 cleats shall be securely nailed or bolted to each rail. The combined cross sectional area of the cleats shall be not less than the cross sectional area of the side rail. The dimensions of side rails for their total length shall be those specified in paragraph (b) or (c) of this section.

(3) Portable ladders shall be lashed, blocked or otherwise secured to prevent their being displaced. The side rails of ladders used for access to any level shall extend not less than 36 inches above that level. When this is not practical, grab rails which will provide a secure grip for an employee moving to or from the point of access shall be installed.

(4) Portable metal ladders shall be of strength equivalent to that of wood ladders. Manufactured portable metal ladders provided by the employer shall be in accordance with the provisions of the American National Standards Institute Safety Code for Portable Metal Ladders, A14.2—1972.

(5) Portable metal ladders shall not be used near electrical conductors nor for electric arc welding operations.

(6) Manufactured portable wood ladders provided by the employer shall be in accordance with the provisions of the American National Standards Institute Safety Code for Portable Wood Ladders, A14—1975.

(b) *Construction of portable wood cleated ladders up to 30 feet in length.* (1) Wood side rails shall be made from West Coast hemlock, Eastern spruce, Sitka spruce, or wood of equivalent strength. Material shall be seasoned, straight-grained wood, and free from shakes, checks, decay or other defects which will impair its strength. The use of low density woods is prohibited.

(2) Side rails shall be dressed on all sides and kept free of splinters.

(3) All knots shall be sound and hard. The use of material containing loose knots is prohibited. Knots shall not appear on the narrow face of the rail and, when in the side face, shall be not more than ½ inch in diameter or within ½ inch of the edge of the rail or nearer than 3 inches to a tread or rung.

(4) Pitch pockets not exceeding ⅛ inch in width, 2 inches in length and ½ inch in depth are permissible in wood side rails, provided that not more than one such pocket appears in each 4 feet of length.

(5) The width between side rails at the base shall be not less than 11½ inches for ladders 10 feet or less in length. For longer ladders this width shall be increased at least ¼ inch for each additional 2 feet in length.

(6) Side rails shall be at least 1⅝ x 3⅝ inches in cross section.

(7) Cleats (meaning rungs rectangular in cross section with the wide dimension parallel to the rails) shall be of the material used for side rails, straight-grained and free from knots. Cleats shall be mortised into the edges of the side rails ½ inch, or filler blocks shall be used on the rails between the cleats. The cleats shall be secured to each rail with three 10d common wire nails or fastened with through bolts or other fasteners of equivalent strength. Cleats shall be uniformly spaced not more than 12 inches apart.

(8) Cleats 20 inches or less in length shall be at least 25/32 x 3 inches in cross section. Cleats over 20 inches but not more than 30 inches in length shall be at least 25/32 x 3¾ inches in cross section.

(c) *Construction of portable wood cleated ladders from 30 to 60 feet in length.* (1) Ladders from 30 to 60 feet in length shall be in accordance with the specifications of paragraph (b) of this section with the following exceptions:

(i) Rails shall be of not less than 2 x 6 inch lumber.

(ii) Cleats shall be of not less than 1 x 4 inch lumber.

(iii) Cleats shall be nailed to each rail with five 10d common wire nails or fastened with through bolts or other fastenings of equivalent strength.

§ 1915.73 Guarding of deck openings and edges.

(a) The provisions of this section shall apply to ship repairing and shipbuilding operations and shall not apply to shipbreaking.

(b) When employees are working in the vicinity of flush manholes and other small openings of comparable size in the deck and other working surfaces, such openings shall be suitably covered or guarded to a height of not less than 30 inches, except where the use of such guards is made impracticable by the work actually in progress.

(c) When employees are working around open hatches not protected by coamings to a height of 24 inches or around other large openings, the edge of the opening shall be guarded in the working area to height of 36 to 42 inches, except where the use of such guards is made impracticable by the work actually in progress.

(d) When employees are exposed to unguarded edges of decks, platforms, flats, and similar flat surfaces, more than 5 feet above a solid surface, the edges shall be guarded by adequate guardrails meeting the requirements of § 1915.71(j) (1) and (2), unless the nature of the work in progress or the physical conditions prohibit the use or installation of such guardrails.

(e) When employees are working near the unguarded edges of decks of vessels afloat, they shall be protected by personal flotation devices, meeting the requirements of § 1915.154(a).

(f) Sections of bilges from which floor plates or gratings have been removed shall be guarded by guardrails except where they would interfere with work in progress. If these open sections are in a walkway at least two 10-inch planks placed side by side, or equivalent, shall be laid across the opening to provide a safe walking surface.

(g) Gratings, walkways, and catwalks, from which sections or ladders have been removed, shall be barricaded with adequate guardrails.

§ 1915.74 Access to vessels.

(a) *Access to vessels afloat.* The employer shall not permit employees to board or leave any vessel, except a barge or river towboat, until the following requirements have been met:

(1) Whenever practicable, a gangway of not less than 20 inches walking surface of adequate strength, maintained in safe repair and safely secured shall be used. If a gangway is not practicable, a substantial straight ladder, extending at least 36 inches above the upper landing surface and adequately secured against shifting or slipping shall be provided. When conditions are such that neither a gangway nor a straight ladder can be used, a Jacob's ladder meeting the requirements of paragraphs (d) (1) and (2) of this section may be used.

(2) Each side of such gangway, and the turn table if used, shall have a railing with a minimum height of approximately 33 inches measured perpendicularly from rail to walking surface at the stanchion, with a mid rail. Rails shall be of wood, pipe, chain, wire or rope and shall be kept taut at all times.

(3) Gangways on vessels inspected and certificated by the U.S. Coast Guard are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

(4) The gangway shall be kept properly trimmed at all times.

(5) When a fixed tread accommodations ladder is used, and the angle is low enough to require employees to walk on the edge of the treads, cleated duckboards shall be laid over and secured to the ladder.

(6) When the lower end of a gangway overhangs the water between the ship and the dock in such a manner that there is danger of employees falling between the ship and the dock, a net or other suitable protection shall be rigged at the foot of the gangway in such a manner as to prevent employees from falling from the end of the gangway.

(7) If the foot of the gangway is more than one foot away from the edge of the apron, the space between them shall be bridged by a firm walkway equipped with railings, with a minimum height of approximately 33 inches with midrails on both sides.

(8) Supporting bridles shall be kept clear so as to permit unobstructed passage for employees using the gangway.

(9) When the upper end of the means of access rests on or flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial handrail approximately 33 inches in height shall be provided between the top of the bulwark and the deck.

(10) Obstructions shall not be laid on or across the gangway.

(11) The means of access shall be adequately illuminated for its full length.

(12) Unless the construction of the vessel makes it impossible, the means of access shall be so located that drafts of cargo do not pass over it. In any event, loads shall not be passed over the means of access while employees are on it.

(b) *Access to vessels in drydock or between vessels.* Gangways meeting the requirements of paragraphs (a) (1), (2), (9), (10), (11) of this section shall be provided for access from wingwall to vessel or, when two or more vessels, other than barges or river towboats, are lying abreast, from one vessel to another.

(c) *Access to barges and river towboats.* (1) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained and properly secured.

(2) Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp in accordance with the requirements of paragraph (a)(7) of this section shall be provided. When a walkway is impracticable, a substantial straight ladder, extending at least 36 inches above the upper landing surface and adequately secured against shifting or slipping, shall be provided. When conditions are such that neither a walkway nor a straight ladder can be used, a Jacob's ladder in accordance with the requirements of paragraph (d) of this section may be used.

(3) The means of access shall be in accordance with the requirements of paragraphs (a) (9), (10), and (11) of this section.

(d) *Jacob's ladders.* (1) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

(2) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

§ 1915.75 Access to and guarding of dry docks and marine railways.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) A gangway, ramp or permanent stairway of not less than 20 inches walking surface, of adequate strength, maintained in safe repair and securely fastened, shall be provided between a floating dry dock and the pier or bulkhead.

(b) Each side of such gangway, ramp or permanent stairway, including those which are used for access to wing walls from dry dock floors, shall have a railing with a mid rail. Such railings on gangways or ramps shall be approximately 42 inches in height; and railings on permanent stairways shall be not less than approximately 30 or more than approximately 34 inches in height. Rails shall be of wood, pipe, chain, wire, or rope, and shall be kept taut at all times.

(c) Railings meeting the requirements of paragraph (b) of this section shall be provided on the means of access to and from the floors of graving docks.

(d) Railings approximately 42 inches in height, with a mid rail, shall be provided on the edges of wing walls of floating dry docks and on edges of graving docks. Sections of the railings may be temporarily removed where necessary to permit line handling while a vessel is entering or leaving the dock.

(e) When employees are working on the floor of a floating dry dock where they are exposed to the hazard of falling into the water, the end of the dry dock shall be equipped with portable

stanchions and 42 inch railings with a mid rail. When such a railing would be impracticable or ineffective, other effective means shall be provided to prevent men from falling into the water.

(f) Access to wing walls from floors of dry docks shall be by ramps, permanent stairways or ladders meeting the applicable requirements of § 1915.72.

(g) Catwalks on stiles of marine railways shall be no less than 20 inches wide and shall have on at least one side a guardrail and midrail meeting the requirements of § 1915.71(j) (1) and (2).

§ 1915.76 Access to cargo spaces and confined spaces.

The provisions of this section apply to ship repairing, shipbuilding and shipbreaking except that paragraph (a)(4) of this section applies to ship repairing only.

(a) *Cargo spaces.* (1) There shall be at least one safe and accessible ladder in any cargo space which employees must enter.

(2) When any fixed ladder is visibly unsafe, the employer shall prohibit its use by employees.

(3) Straight ladders of adequate strength and suitably secured against shifting or slipping shall be provided as necessary when fixed ladders in cargo spaces do not meet the requirements of paragraph (a)(1) of this section. When conditions are such that a straight ladder cannot be used, a Jacob's ladder meeting the requirements of § 1915.74(d) may be used.

(4) When cargo is stowed within 4 inches of the back of ladder rungs, the ladder shall be deemed "unsafe" for the purpose of this section.

(5) Fixed ladders or straight ladders provided for access to cargo spaces shall not be used at the same time that cargo drafts, equipment, materials, scrap or other loads are entering or leaving the hold. Before using these ladders to enter or leave the hold, the employee shall be required to inform the winchman or crane signalman of his intention.

(b) *Confined spaces.* (1) More than one means of access shall be provided to a confined space in which employees are working and in which the work may generate a hazardous atmosphere in the space except where the structure or arrangement of the vessel makes this provision impractical.

(2) When the ventilation ducts required by these regulations must pass through these means of access, the ducts shall be of such a type and so arranged as to permit free passage of an employee through at least two of these means of access.

§ 1915.77 Working surfaces.

(a) Paragraphs (b) through (d) of this section shall apply to ship repairing, shipbuilding operations and shall not apply to shipbreaking. Paragraph (e) of this section shall apply to shipbuilding, ship repairing and shipbreaking operations.

(b) When firebox floors present tripping hazards of exposed tubing or of missing or removed refractory, sufficient planking to afford safe footing shall be laid while work is being carried on within the boiler.

(c) When employees are working aloft, or elsewhere at elevations more than 5 feet above a solid surface, either scaffolds or a sloping ladder, meeting the requirements of this subpart, shall be used to afford safe footing, or the employees shall be protected by safety belts and lifelines meeting the requirements of § 1915.154(b). Employees visually restricted by blasting hoods, welding helmets, and burning goggles shall work from scaffolds, not from ladders, except for the initial and final welding or burning operation to start or complete a job, such as the erection and dismantling of hung scaffolding, or other similar, nonrepetitive jobs of brief duration.

(d) For work performed in restricted quarters, such as behind boilers and in between congested machinery units and piping, work platforms at least 20 inches wide meeting the requirements of § 1915.71(i)(1) shall be used. Backrails may be omitted if bulkheading, boilers, machinery units, or piping afford proper protection against falling.

(e) When employees are boarding, leaving, or working from small boats or floats, they shall be protected by personal flotation devices meeting the requirements of § 1915.154.

Subpart F—General Working Conditions

§ 1915.91 Housekeeping.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking except that paragraphs (c) and (e) of this section do not apply to shipbreaking.

(a) Good housekeeping conditions shall be maintained at all times. Adequate aisles and passageways shall be maintained in all work areas. All staging platforms, ramps, stairways, walkways, aisles, and passageways on vessels or dry docks shall be kept clear of all tools, materials, and equipment except that which is in use, and all debris such as welding rod tips, bolts, nuts, and similar material. Hose and electric conductors shall be elevated over or placed under the walkway or working surfaces or covered by adequate crossover planks.

(b) All working areas on or immediately surrounding vessels and dry docks, graving docks, or marine railways shall be kept reasonably free of debris, and construction material shall be so piled as not to present a hazard to employees.

(c) Slippery conditions on walkways or working surfaces shall be eliminated as they occur.

(d) Free access shall be maintained at all times to all exits and to all fire-alarm boxes or fire-extinguishing equipment.

(e) All oils, paints thinners, solvents, waste, rags, or other flammable substances shall be kept in fire resistant covered containers when not in use.

§ 1915.92 Illumination.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) All means of access and walkways leading to working areas as well as the working areas themselves shall be adequately illuminated.

(b) Temporary lights shall meet the following requirements:

(1) Temporary lights shall be equipped with guards to prevent accidental contact with the bulb, except that guards are not required when the construction of the reflector is such that the bulb is deeply recessed.

(2) Temporary lights shall be equipped with heavy duty electric cords with connections and insulation maintained in safe condition. Temporary lights shall not be suspended by their electric cords unless cords and lights are designed for this means of suspension. Splices which have insulation equal to that of the cable are permitted.

(3) Cords shall be kept clear of working spaces and walkways or other locations in which they are readily exposed to damage.

(c) Exposed non-current-carrying metal parts of temporary lights furnished by the employer shall be grounded either through a third wire in the cable containing the circuit conductors or through a separate wire which is grounded at the source of the current. Grounding shall be in accordance with the requirements of § 1915.132(b).

(d) Where temporary lighting from sources outside the vessel is the only means of illumination, portable emergency lighting equipment shall be available to provide illumination for safe movement of employees.

(e) Employees shall not be permitted to enter dark spaces without a suitable portable light. The use of matches and open flame lights is prohibited. In nongas free spaces, portable lights shall meet the requirements of § 1915.13.

(f) Temporary lighting stringers or streamers shall be so arranged as to avoid overloading of branch circuits. Each branch circuit shall be equipped with overcurrent protection of capacity not exceeding the rated current carrying capacity of the cord used.

§ 1915.93 Utilities.

The provisions of this section shall apply to ship repairing, shipbuilding, and shipbreaking except that paragraph (c) of this section applies to ship repairing and shipbuilding only.

(a) *Steam supply and hoses.* (1) Prior to supplying a vessel with steam from a source outside the vessel, the employer shall ascertain from responsible vessel's representatives, having knowledge of the condition of the plant, the safe working pressure of the vessel's

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steam system. The employer shall install a pressure gauge and a relief valve of proper size and capacity at the point where the temporary steam hose joins the vessel's steam piping system or systems. The relief valve shall be set and capable of relieving at a pressure not exceeding the safe working pressure of the vessel's system in its present condition, and there shall be no means of isolating the relief valve from the system which it protects. The pressure gauge and relief valve shall be located so as to be visible and readily accessible.

(2) Steam hose and fittings shall have a safety factor of not less than five (5).

(3) When steam hose is hung in a bight or bights, the weight shall be relieved by appropriate lines. The hose shall be protected against chafing.

(4) Steam hose shall be protected from damage and hose and temporary piping shall be so shielded where passing through normal work areas as to prevent accidental contact by employees.

(b) *Electric power.* (1) When the vessel is supplied with electric power from a source outside the vessel, the following precautions shall be taken prior to energizing the vessel's circuits:

(i) If in dry dock, the vessel shall be adequately grounded.

(ii) The employer shall ascertain from responsible vessel's representatives, having knowledge of the condition of the vessel's electrical system, that all circuits to be energized are in a safe condition.

(iii) All circuits to be energized shall be equipped with overcurrent protection of capacity not exceeding the rated current carrying capacity of the cord used.

(c) *Infrared electrical heat lamps.* (1) All infrared electrical heat lamps shall be equipped with guards that surround the lamps with the exception of the face, to minimize accidental contact with the lamps.

§ 1915.94 Work in confined or isolated spaces.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking. When any work is performed in a confined space, except as provided in § 1915.51(c)(3), or when an employee is working alone in an isolated location, frequent checks shall be made to ensure the safety of the employees.

§ 1915.95 Ship reparing and shipbuilding work on or in the vicinity of radar and radio.

The provisions of this section shall apply to ship repairing and shipbuilding.

(a) No employees other than radar or radio repairmen shall be permitted to work on masts, king posts or other aloft areas unless the radar and radio are secured or otherwise made incapable of radiation. In either event, the radio and radar shall be appropriately tagged.

(b) Testing of radar or radio shall not be done until the employer can schedule such tests at a time when no work is in progress aloft or personnel can be cleared from the danger area according to minimum safe distances established for and based on the type, model, and power of the equipment.

[47 FR 16986, Apr. 20, 1982, as amended at 49 FR 18295, Apr. 30, 1984; 54 FR 24334, June 7, 1989]

§ 1915.96 Work in or on lifeboats.

The provisions of this section shall apply to ship repairing, shipbuilding, and shipbreaking except that paragraph (b) of this section applies to ship repairing and shipbuilding only.

(a) Before employees are permitted to work in or on a lifeboat, either stowed or in a suspended position, the employer shall ensure that the boat is secured independently of the releasing gear to prevent the boat from falling due to accidental tripping of the releasing gear and movement of the davits or capsizing of a boat in chocks.

(b) Employees shall not be permitted to remain in boats while the boats are being hoisted into final stowed position.

(c) Employees shall not be permitted to work on the outboard side of lifeboats stowed on their chocks unless the boats are secured by gripes or otherwise secured to prevent them from swinging outboard.

§ 1915.97 Health and sanitation.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking, except where indicated otherwise.

(a) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under § 1915.99 of this part and those hazards for which specific precautions are required in Subparts B, C, and D of this part.

(b) The employer shall provide adequate washing facilities for employees engaged in the application of paints or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing or hands and face prior to eating or smoking.

(c) The employer shall not permit employees to eat or smoke in areas undergoing surface preparation or preservation or where shipbreaking operations produce atmospheric contaminants.

(d) The employer shall not permit employees engaged in ship repair work on a vessel to work in the immediate vicinity of uncovered garbage and shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.

(e) No minor under 18 years of age shall be employed in shipbreaking or related employments.

[52 FR 31886, Aug. 24, 1987]

§ 1915.98 First aid.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Unless a first aid room and a qualified attendant are close at hand and prepared to render first aid to employees on behalf of the employer, the employer shall furnish a first aid kit for each vessel on which work is being performed, except that when work is being performed on more than one small vessel at one pier, only one kit shall be required. The kit, when required, shall be kept close to the vessel and at least one employee, close at hand, shall be qualified to administer first aid to the injured.

(b) The first aid kit shall consist of a weatherproof container with individual sealed packages for each type of item. The contents of such kit shall contain a sufficient quantity of at least the following types of items:

Gauze roller bandages, 1 inch and 2 inch.
Gauze compress bandages, 4 inch.
Adhesive bandages, 1 inch.
Triangular bandages, 40 inch.
Ammonia inhalants and ampules.
Antiseptic applicators or swabs.
Burn dressing.
Eye dressing.
Wire or thin board splints.
Forceps and tourniquet.

(c) The contents of the first aid kit shall be checked before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

(d) There shall be available for each vessel on which ten (10) or more employees are working one Stokes basket stretcher, or equivalent, permanently equipped with bridles for attaching to the hoisting gear, except that no more than two strechers are required on each job location. A blanket or other liner suitable for transferring the patient to and from the stretcher shall be provided. Stretchers shall be kept close to the vessels. This paragraph does not apply where ambulance services which are available are known to carry such stretchers.

§ 1915.99 Hazard communication.

(a) *Purpose.* (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address

comprehensively the issue of evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legal requirements of a state, or political subdivision of a state, pertaining to the subject. Evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of material safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce, through any court or agency, any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) *Scope and application.* (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers.

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees; and,

(iii) Employers shall ensure that laboratory employees are apprised of the hazards of the chemicals in their workplaces in accordance with paragraph (h) of this section.

(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(1)(iii)), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(5) This section does not require labeling of the following chemicals:

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that

Act by the Environmental Protection Agency;

(ii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) and regulations issued under that Act, when they are subject to the labeling requirements under that Act by the Food and Drug Administration;

(iii) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol Tobacco, and Firearms; and,

(iv) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission.

(6) This section does not apply to:

(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Tobacco or tobacco products;

(iii) Wood or wood products;

(iv) Articles;

(v) Food, drugs, cosmetics, or alcoholic beverages in a retail establishment which are packaged for sale to consumers;

(vi) Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace;

(vii) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can demonstrate it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers; and,

(viii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*), when it is in solid, final form for direct administration to the patient (i.e. tablets or pills).

(c) *Definitions.* "Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Chemical" means any element, chemical compound or mixture of elements and/or compounds.

"Chemical manufacturer" means an employer with a workplace where chemical(s) are produced for use or distribution.

"Chemical name" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

"Combustible liquid" means any liquid having a flashpoint at or above 100 °F (37.8 °C), but below 200 ° F (93.3 ° C), except any mixture having components with flashpoints of 200 °F (93.3 °C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

"Common name" means any designation or identification such as code name, code number, trade name, brand name or generic name used to

identify a chemical other than by its chemical name.

"Compressed gas" means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F (21.1 °C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D-323-72.

"Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Distributor" means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

"Employee" means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

"Employer" means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

"Explosive" means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

"Exposure" or "exposed" means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.

"Flammable" means a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture;

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in § 190.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

"Flashpoint" means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt University Seconds (SUS) at 100 °F (37.8 °C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 °F (37.8 °C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTMD 3278-78))

Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flash-point determination methods specified above.

"Foreseeable emergency" means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

"Hazardous chemical" means any chemical which is a physical hazard or a health hazard.

"Hazard warning" means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

"Health hazard" means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

"Identity" means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

"Immediate use" means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

"Importer" means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

"Label" means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

"Material safety data sheet (MSDS)" means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

"Mixture" means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

"Organic peroxide" means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

"Oxidizer" means a chemical other than a blasting agent or explosive as defined in § 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

"Physical hazard" means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

"Produce" means to manufacture, process, formulate, or repackage.

"Pyrophoric" means a chemical that will ignite spontaneously in air at a temperature of 130 °F (54.4 °C) or below.

"Responsible party" means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

"Specific chemical identity" means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D sets out the criteria to be used in evaluating trade secrets.

"Unstable (reactive)" means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

"Use" means to package, handle, react, or transfer.

"Water-reactive" means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

"Work area" means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

"Workplace" means an establishment, job site, or project, at one geographical location containing one or more work areas.

(d) *Hazard determination.* (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

(ii) *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment*, American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition).

The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);

(ii) International Agency for Research on Cancer (IARC) *Monographs* latest editions); or

(iii) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

NOTE: The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(e) *Written hazard communication program.* (1) Employers shall develop, implement, and maintain at the workplace, a written hazard communication program for their workplaces which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(2) *Multi-employer workplaces.* Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(i) The methods the employer will use to provide the other employer(s) with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous chemical the other employer(s)' employees may be exposed to while working;

(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20(e).

(f) *Labels and other forms of warning.* (1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s);

(ii) Appropriate hazard warnings; and

(iii) Name and address of the chemical manufacturer, importer, or other responsible party.

(2) For solid metal (such as a steel beam or a metal casting) that is not exempted as an article due to its downstream use, the required label may be transmitted to the customer at the time of the intial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes. The label may be transmitted with the initial shipment itself, or with the material safety data sheet that is to be provided prior to or at the time of the first shipment. This exception to requiring labels on every container of hazardous chemicals is only for the solid metal itself and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the metal and to which employees handling the metal may be exposed (for example, cutting fluids or lubricants).

(3) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 *et seq.*) and regulations issued under that Act by the Department of Transportation.

(4) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.

(5) Except as provided in paragraphs (f)(6) and (f)(7) of this section the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and

(ii) Appropriate hazard warnings.

(6) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(5) of this section to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift.

(7) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

(8) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(9) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily

available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(10) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.

(g) *Material safety data sheets.* (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English and shall contain at least the following information:

(i) The identity used on the label, and, except as provided for in paragraph (i) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole:

(*1*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d)(4) of this section shall be listed if the concentrations are 0.1% or greater; and,

(*2*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1% (0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees; and,

(*3*) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;

(ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(v) The primary route(s) of entry;

(vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available;

(vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) *Annual Report on Carcinogens* (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) *Monographs* (latest editions), or by OSHA;

(viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;

(ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;

(x) Emergency and first aid procedures;

(xi) The date of preparation of the material safety data sheet or the last change to it; and,

(xii) The name, address and telephone number of the chemical manu-

facturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their intitial shipment, and with the first shipment after a material safety data sheet is updated. The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the employer prior to or at the time of the shipment. If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the employer shall obtain one from the chemical manufacturer, importer, or distributor as soon as possible.

(7) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers. Retail distributors which sell hazardous chemicals to commercial customers shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available. Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors which have informed them that the retail distributor does not sell the product to commercial customers or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain copies of the required material safety data sheets for each hazardous chemical in the workplace, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).

(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at a central location at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work areas(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20 (e). The Director shall

also be given access to material safety data sheets in the same manner.

(h) *Employee information and training.* Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

(1) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and,

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(2) *Training.* Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

(i) *Trade secrets.* (1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

(i) The claim that the information withheld is a trade secret can be supported;

(ii) Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

(iii) The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,

(iv) The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need of a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

(i) The request is in writing;

(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(A) To assess the hazards of the chemicals to which employees will be exposed;

(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(D) To provide medical treatment to exposed employees;

(E) To select or assess appropriate personal protective equipment for exposed employees;

(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

(A) The properties and effects of the chemical;

(B) Measures for controlling workers' exposure to the chemical;

(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

(4) The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

(i) May restrict the use of the information to the health purposes indicated in the written statement of need;

(ii) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,

(iii) May not include requirements for the posting of a penalty bond.

(5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

(6) If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.

(7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must:

(i) Be provided to the health professional, employee, or designated representative, within thirty days of the request;

(ii) Be in writing;

(iii) Include evidence to support the claim that the specific chemical identity is a trade secret;

(iv) State the specific reasons why the request is being denied; and,

(v) Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.

(8) The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.

(9) When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:

(i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret;

(ii) The health professional, employee, or designated representative has supported the claim that there is a

medical or occupational health need for the information; and,

(iii) The health professional, employee, or designated representative has demonstrated adequate means to protect the confidentiality.

(10)(i) If OSHA determines that the specific chemical identity requested under paragraph (i)(3) of this section is not a *bona fide* trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.

(ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.

(11) If a citation for a failure to release specific chemical identity information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation *in camera* or issue appropriate orders to protect the confidentiality or such matters.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

(j) *Effective dates.* (1) Chemical manufacturers, importers, and distributors shall ensure that material safety data sheets are provided with the next shipment of hazardous chemicals to employers after September 23, 1987.

(2) Employers in the non-manufacturing sector shall be in compliance with all provisions of this section by May 23, 1988. (Note: Employers in the manufacturing sector (SIC Codes 20 through 39) are already required to be in compliance with this section.)

(Approved by the Office of Management and Budget under control number 1218-0072)

Appendix A to § 1915.99 Health Hazard Definitions (*Mandatory*)

Although safety hazards related to the physical characteristics of a chemical can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body—such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees—such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects or signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causa-

tive factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most chemicals have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms "acute" and "chronic" are used to delineate between effects on the basis of severity or duration. "Acute" effects usually occur rapidly as a result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standards Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1-1982)—irritation, corrosivity, sensitization and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects which may occur as a result of occupational exposure, such as, for example, narcosis.

Similarly, the term chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity. These effects are obviously a concern in the workplace, but again, do not adequately cover the area of chronic effects, excluding, for example, blood dyscrasias (such as anemia), chronic bronchitis and liver atrophy.

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them. Appendix B, which is also mandatory, outlines the principles and procedures of hazardous assessment.

For purposes of this section, any chemicals which meet any of the following definitions, as determined by the criteria set forth in Appendix B are health hazards:

1. *Carcinogen:* A chemical is considered to be a carcinogen if:

(a) It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or

(b) It is listed as a carcinogen or potential carcinogen in the *Annual Report on Carcinogens* published by the National Toxicology Program (NTP) (latest edition); or,

(c) It is regulated by OSHA as a carcinogen.

2. *Corrosive:* A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits b method described by the U.S. Depar of Transportation in Appendix A to 4 Part 173, it destroys or changes irrev the structure of the tissue at the site tact following an exposure period o hours. This term shall not refer to act inanimate surfaces.

3. *Highly toxic:* A chemical falling any of the following categories:

(a) A chemical that has a median dose (LD_{50}) of 50 milligrams or less pe gram of body weight when admini orally to albino rats weighing betwe and 300 grams each.

(b) A chemical that has a median does (LD_{50}) of 200 milligrams or le kilogram of body weight when admini by continuous contact for 24 hours (if death occurs within 24 hours) wi bare skin of albino rabbits weighi tween two and three kilograms each.

(c) A chemical that has a median concentration (LC_{50}) in air of 200 pa million by volume or less of gas or va 2 milligrams per liter or less of mist, or dust, when administered by conti inhalation for one hour (or less if occurs within one hour) to albin weighing between 200 and 300 grams e

4. *Irritant:* A chemical, which is not sive, but which causes a reversible i matory effect on living tissue by ch action at the site of contact. A chemic skin irritant if, when tested on the skin of albino rabbits by the methods CFR 1500.41 for four hours exposure other appropriate techniques, it resu an empirical score of five or more. A cal is an eye irritant if so determined the procedure listed in 16 CFR 1500 other appropriate techniques.

5. *Sensitizer:* A chemical that ca substantial proportion of exposed pe animals to develop an allergic react normal tissue after repeated exposu the chemical.

6. *Toxic.* A chemical falling within the following categories:

(a) A chemical that has a median dose (LD_{50}) of more than 50 milligra kilogram but not more than 500 milli per kilogram of body weight when ad tered orally to albino rats weighing be 200 and 300 grams each.

(b) A chemical that has a median dose (LD_{50}) of more than 200 milligra kilogram but not more than 1,000 grams per kilogram of body weight wh ministered by continuous contact f hours (or less if death occurs with hours) with the bare skin of albino r weighing between two and three kilo each.

(c) A chemical that has a median concentration (LC_{50}) in air of more tha

parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

7. *Target organ effects.* The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

a. Hepatotoxins: Chemicals which produce liver damage
   Signs & Symptoms: Jaundice; liver enlargement
   Chemicals: Carbon tetrachloride; nitrosamines
b. Nephrotoxins: Chemicals which produce kidney damage
   Signs & Symptoms: Edema; proteinuria
   Chemicals: Halogenated hydrocarbons; uranium
c. Neurotoxins: Chemicals which produce their primary toxic effects on the nervous system
   Signs & Symptoms: Narcosis; behavioral changes; decrease in motor functions
   Chemicals: Mercury; carbon disulfide
d. Agents which act on the blood or hematopoietic system: Decrease hemoglobin function; deprive the body tissues of oxygen
   Signs & Symptoms: Cyanosis; loss of consciousness
   Chemicals: Carbon monoxide; cyanides
e. Agents which damage the lung: Chemicals which irritate or damage the pulmonary tissue
   Signs & Symptoms: Cough; tightness in chest; shortness of breath
   Chemicals: Silica; asbestos
f. Reproductive toxins: Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
   Signs & Symptoms: Birth defects; sterility
   Chemicals: Lead; DBCP
g. Cutaneous hazards: Chemicals which affect the dermal layer of the body
   Signs & Symptoms: Defatting of the skin; rashes; irritation
   Chemicals: Ketones; chlorinated compounds
h. Eye hazards: Chemicals which affect the eye or visual capacity
   Signs & Symptoms: Conjunctivitis; corneal damage
   Chemicals: Organic solvents; acids

Appendix B to § 1915.99 Hazard Determination (*Mandatory*)

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process which relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance-orientation of the hazard determination does not diminish the duty of the chemical manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. *Carcinogenicity*: As described in paragraph (d)(4) and Appendix A of this section, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section.

2. *Human data*: Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.

3. *Animal data*: Human evidence of health effects in exposed populations is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).

4. *Adequacy and reporting of data.* The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet. The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazard.

APPENDIX C TO § 1915.99 INFORMATION SOURCES (*Advisory*)

The following is a list of available data sources which the chemical manufacturer, importer, distributor, or employer may wish to consult to evaluate the hazards of chemicals they produce or import:

—Any information in their own company files, such as toxicity testing results or illness experience of company employees.

—Any information obtained from the supplier of the chemical, such as material safety data sheets or product safety bulletins.

—Any pertinent information obtained from the following source list (latest editions should be used):

Condensed Chemical Dictionary
Van Nostrand Reinhold Co., 135 West 50th Street, New York, NY 10020.

The Merck Index: An Encyclopedia of Chemicals and Drugs
Merck and Company, Inc., 126 E. Lincoln Ave., Rahway, NJ 07065.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man
Geneva: World Health Organization, International Agency for Research on Cancer, 1972–Present. (Multivolume work). Summaries are available in supplement volumes. 49 Sheridan Street, Albany, NY 12210.

Industrial Hygiene and Toxicology, by F.A. Patty
John Wiley & Sons, Inc., New York, NY (Multivolume work).

Clinical Toxicology of Commercial Products
Gleason, Gosselin, and Hodge

Casarett and Doull's Toxicology; The Basic Science of Poisons
Doull, Klaassen, and Amdur, Macmillan Publishing Co., Inc., New York, NY.

Industrial Toxicology, by Alice Hamilton and Harriet L. Hardy
Publishing Sciences Group, Inc., Acton, MA.

Toxicology of the Eye, by W. Morton Grant
Charles C. Thomas, 301-327 East Lawrence Avenue, Springfield, IL.

Recognition of Health Hazards in Industry
William A. Burgess, John Wiley and Sons, 605 Third Avenue, New York, NY 10158.

Chemical Hazards of the Workplace
Nick H. Proctor and James P. Hughes, J.P. Lipincott Company, 6 Winchester Terrace, New York, NY 10022.

Handbook of Chemistry and Physics
Chemical Rubber Company, 18901 Cranwood Parkway, Cleveland, OH 44128.

Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment and Biological Exposure Indices with Intended Changes
American Conference of Governmental Industrial Hygienists (ACGIH). 6500 Glenway Avenue, Bldg. D-5, Cincinnati, OH 45211.

Information on the physical hazards of chemicals may be found in publications of the National Fire Protection Association, Boston, MA.

NOTE: The following documents may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Occupational Health Guidelines
NIOSH/OSHA (NIOSH Pub. No. 81-123)

NIOSH Pocket Guide to Chemical Hazards
NIOSH Pub. No. 85-114

Registry of Toxic Effects of Chemical Substances
NIOSH Pub. No. 80-102

Miscellaneous Documents published by the National Institute for Occupational Safety and Health:
Criteria documents.
Special Hazard Reviews.
Occupational Hazard Assessments.
Current Intelligence Bulletins.

OSHA's General Industry Standards (29 CFR Part 1910)

NTP Annual Report on Carcinogens and *Summary of the Annual Report on Carcinogens.*

National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (703) 487-4650.

BIBLIOGRAPHIC DATA BASES

Service provider	File name
Bibliographic Retrieval Services (BRS), 1200 Route 7, Latham, NY 12110.	Biosis Previews CA Search Medlers NTIS Hazardline American Chemical Society Journal Excerpta Medica IRCS Medical Science Journal Pre-Med Intl Pharmaceutical Abstracts Paper Chem
Lockheed—DIALOG Information Service, Inc., 3460 Hillview Avenue, Palo Alto, CA 94304.	Biosis Prev. Files CA Search Files CAB Abstracts Chemical Exposure Chemname Chemsis Files Chemzero Embase Files Environmental Bibliographies Enviroline Federal Research in Progress IRL Life Science Collection NTIS Occupational Safety and Health (NIOSH) Paper Chem

BIBLIOGRAPHIC DATA BASES—Continued

Service provider	File name
SDC—Orbit, SDC Information Service, 2500 Colorado Avenue, Santa Monica, CA 90406.	CAS Files Chemdex, 2, 3 NTIS
National Library of Medicine, Department of Health and Human Services, Public Health Service, National Institutes of Health, Bethesda, MD 20209.	Hazardous Substances Data Bank (NSDB) Medline files Toxline Files Cancerlit RTECS Chemline
Pergamon International Information Corp., 1340 Old Chain Bridge Rd., McLean, VA 22101.	Laboratory Hazard Bulletin
Questel, Inc., 1625 Eye Street, NW., Suite 818, Washington, DC 20006.	CIS/ILO Cancernet
Chemical Information System ICI (CIS), Bureau of National Affairs, 1133 15th Street, NW., Suite 300, Washington, DC 20005.	Structure and Nomenclature Search System (SANSS) Acute Toxicity (RTECS) Clinical Toxicology of Commercial Products Oil and Hazardous Materials Technical Assistance Data System CCRIS CESARS
Occupational Health Services, 400 Plaza Drive, Secaucus, NJ 07094.	MSDS Hazardline

APPENDIX D TO § 1915.99 DEFINITION OF "TRADE SECRET" (*Mandatory*)

The following is a reprint of the *Restatement of Torts* section 757, comment *b* (1939):

b. Definition of trade secret. A trade secret may consist of any formula, pattern device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers. It differs from other secret information in a business (see § 759 of the *Restatement of Torts* which is not included in this Appendix) in that it is not simply information as to single or ephemeral events in the conduct of the business, as, for example, the amount or other terms of a secret bid for a contract or the salary of certain employees, or the security investments made or contemplated, or the date fixed for the announcement of a new policy or for bringing out a new model or the like. A trade secret is a process or device for continuous use in the operations of the business. Generally it relates to the production of goods, as, for example, a machine or formula for the production of an article. It may, however, relate to the sale of goods or to other operations in the business, such as a code for determining discounts, rebates or other concessions in a price list or catalogue, or a list of specialized customers, or a method of bookkeeping or other office management.

Secrecy. The subject matter of a trade secret must be secret. Matters of public knowledge or of general knowledge in an industry cannot be appropriated by one as his secret. Matters which are completely disclosed by the goods which one markets cannot be his secret. Substantially, a trade secret is known only in the particular business in which it is used. It is not requisite that only the proprietor of the business know it. He may, without losing his protection, communicate it to employees involved in its use. He may likewise communicate it to others pledged to secrecy. Others may also know of it independently, as, for example, when they have discovered the process or formula by independent invention and are keeping it secret. Nevertheless, a substantial element of secrecy must exist, so that, except by the use of improper means, there would be difficulty in acquiring the information. An exact definition of a trade secret is not possible. Some factors to be considered in determining whether given information is one's trade secret are: (1) The extent to which the information is known outside of his business; (2) the extent to which it is known by employees and others involved in his business; (3) the extent of measures taken by him to guard the secrecy of the information; (4) the value of the information to him and his competitors; (5) the amount of effort or money expended by him in developing the information; (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

Novelty and prior art. A trade secret may be a device or process which is patentable; but it need not be that. It may be a device or process which is clearly anticipated in the prior art or one which is merely a mechanical improvement that a good mechanic can make. Novelty and invention are not requisite for a trade secret as they are for patentability. These requirements are essential to patentability because a patent protects against unlicensed use of the patented device or process even by one who discovers it properly through independent research. The patent monopoly is a reward to the inventor. But such is not the case with a trade secret. Its protection is not based on a policy of rewarding or otherwise encouraging the development of secret processes or devices. The protection is merely against breach of faith and reprehensible means of learning another's secret. For this limited protection it is not appropriate to require also the kind of novelty and invention which is a requisite of patentability. The nature of the secret is,

however, an important factor in determining the kind of relief that is appropriate against one who is subject to liability under the rule stated in this section. Thus, if the secret consists of a device or process which is a novel invention, one who acquires the secret wrongfully is ordinarily enjoined from further use of it and is required to account for the profits derived from his past use. If, on the other hand, the secret consists of mechanical improvements that a good mechanic can make without resort to the secret, the wrongdoer's liability may be limited to damages, and an injunction against future use of the improvements made with the aid of the secret may be inappropriate.

[52 FR 31877, Aug. 24, 1987, as amended at 53 FR 15035, Apr. 27, 1988; 54 FR 6888, Feb. 15, 1989; 54 FR 24334, June 7, 1989]

Subpart G—Gear and Equipment for Rigging and Materials Handling

§ 1915.111 Inspection.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) All gear and equipment provided by the employer for rigging and materials handling shall be inspected before each shift and when necessary, at intervals during its use to ensure that it is safe. Defective gear shall be removed and repaired or replaced before further use.

(b) The safe working load of gear as specified in §§ 1915.112 and 1915.113 shall not be exceeded.

§ 1915.112 Ropes, chains and slings.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) *Manila rope and manila rope slings.* (1) Table G–1 in § 1915.118 shall be used to determine the safe working load of various sizes of manila rope and manila rope slings at various angles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than five (5) is maintained.

(b) *Wire rope and wire rope slings.* (1) Tables G–2 through G–5 in § 1915.118 shall be used to determine the safe working loads of various sizes and classifications of improved plow steel wire rope and wire rope slings with various types of terminals. For sizes, classifications and grades not included in these tables, the safe working load recommended by the manufacturer for specific, identifiable products shall be followed, provided that a safety factor of not less than five (5) is maintained.

(2) Protruding ends of strands in splices on slings and bridles shall be covered or blunted.

(3) Where U-bolt wire rope clips are used to form eyes, Table G–6 in § 1915.118 shall be used to determine the number and spacing of clips. The U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.

(4) Wire rope shall not be secured by knots.

(c) *Chains and chain slings.* (1) Tables G–7 and G–8 in § 1915.118 shall be used to determine the working load limit of various sizes of wrought iron and alloy steel chains and chain slings, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products.

(2) All sling chains, including end fastenings, shall be given a visual inspection before being used on the job. A thorough inspection of all chains in use shall be made every 3 months. Each chain shall bear an indication of the month in which it was thoroughly inspected. The thorough inspection shall include inspection for wear, defective welds, deformation and increase in length or stretch.

(3) Interlink wear, not accompanied by stretch in excess of 5 percent, shall be noted and the chain removed from service when maximum allowable wear at any point of link, as indicated in Table G–9 in § 1915.18 has been reached.

(4) Chain slings shall be removed from service when, due to stretch, the increase in length of a measured section exceeds five (5) percent; when a link is bent, twisted or otherwise damaged; or when raised scarfs or defective welds appear.

(5) All repairs to chains shall be made under qualified supervision.

Links or portions of the chain found to be defective as described in paragraph (c)(4) of this section shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be proof tested to the proof test load recommended by the manufacturer.

(6) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months when recommended by the manufacturer. The chain manufacturer shall be consulted for recommended procedures for annealing or normalizing. Alloy chains shall never be annealed.

(7) A load shall not be lifted with a chain having a kink or knot in it. A chain shall not be shortened by bolting, wiring or knotting.

§ 1915.113 Shackles and hooks.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) *Shackles.* (1) Table G–10 in § 1915.118 shall be used to determine the safe working loads of various sizes of shackles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than (5) is maintained.

(b) *Hooks.* (1) The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain and keep readily available a certification record which includes the date of such tests, the signature of the person who performed the test and an identifier for the hook which was tested.

(2) Loads shall be applied to the throat of the hook since loading the point overstresses and bends or springs the hook.

(3) Hooks shall be inspected periodically to see that they have not been bent by overloading. Bent or sprung hooks shall not be used.

[47 FR 16986, Apr. 20, 1982, as amended at 51 FR 34562, Sept. 29, 1986]

§ 1915.114 Chain falls and pull-lifts.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Chain falls and pull-lifts shall be clearly marked to show the capacity and the capacity shall not be exceeded.

(b) Chain falls shall be regularly inspected to ensure that they are safe, particular attention being given to the lift chain, pinion, sheaves and hooks for distortion and wear. Pull-lifts shall be regularly inspected to ensure that they are safe, particular attention being given to the ratchet, pawl, chain and hooks for distortion and wear.

(c) Straps, shackles, and the beam or overhead structure to which a chain fall or pull-lift is secured shall be of adequate strength to support the weight of load plus gear. The upper hook shall be moused or otherwise secured against coming free of its support.

(d) Scaffolding shall not be used as a point of attachment for lifting devices such as tackles, chain falls, and pull-lifts unless the scaffolding is specifically designed for that purpose.

§ 1915.115 Hoisting and hauling equipment.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Derrick and crane certification:

(1) Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wingwalls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, shall be tested and certificated in accordance with the standards provided in Part 1919 of this title by persons accredited for the purpose.

(b) The moving parts of hoisting and hauling equipment shall be guarded.

(c) Mobile crawler or truck cranes used on a vessel: (1) The maximum manufacturer's rated safe working loads for the various working radii of

the boom and the maximum and minimum radii at which the boom may be safely used with and without outriggers shall be conspicuously posted near the controls and shall be visible to the operator. A radius indicator shall be provided.

(2) The posted safe working loads of mobile crawler or truck cranes under the conditions of use shall not be exceeded.

(d) Accessible areas within the swing radius of the outermost part of the body of a revolving derrick or crane wither permanently or temporarily mounted, shall be guarded in such a manner as to prevent an employee from being in such a position as to be struck by the crane or caught between the crane and fixed parts of the vessel or of the crane itself.

(e) *Marine railways.* (1) The cradle or carriage on the marine railway shall be positively blocked or secured when in the hauled position to prevent it from being accidentally released.

§ 1915.116 Use of gear.

(a) The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking except that paragraphs (c) and (d) of this section shall apply to ship repairing and shipbuilding only.

(b) Loads shall be safely rigged before being hoisted.

(c) Plates shall be handled on and off hulls by means of shackles whenever possible. Clips or pads of ample size shall be welded to the plate to receive the shackle pins when there are no holes in the plate. When it is not possible to make holes in or to weld pads to the plate, alligator tongs, grab clamps or screw clamps may be used. In such cases special precautions shall be taken to keep employees from under such lifts.

(d) Tag lines shall be provided on loads likely to swing or to need guidance.

(e) When slings are secured to eyebolts, the slings shall be so arranged, using spreaders if necessary, that the pull is within 20 degrees of the axis of the bolt.

(f) Slings shall be padded by means of wood blocks or other suitable material where they pass over sharpe edges or corners of loads so as to prevent cutting or kinking.

(g) Skips shall be rigged to be handled by not less than 3 legged bridles, and all legs shall always be used. When open end skips are used, means shall be taken to prevent the contents from falling.

(h) Loose ends of idle legs of slings in use shall be hung on the hook.

(i) Employees shall not be permitted to ride the hook or the load.

(j) Loads (tools, equipment or other materials) shall not be swung or suspended over the heads of employees.

(k) Pieces of equipment or structure susceptible to falling or dislodgement shall be secured or removed as early as possible.

(l) An individual who is familiar with the signal code in use shall be assigned to act as a signalman when the hoist operator cannot see the load being handled. Communications shall be made by means of clear and distinct visual or auditory signals except that verbal signals shall not be permitted.

(m) Pallets, when used, shall be of such material and contruction and so maintained as to safely support and carry the loads being handled on them.

(n) A section of hatch through which materials or equipment are being raised, lowered, moved, or otherwise shifted manually or by a crane, winch, hoist, or derrick, shall be completely opened. The beam or pontoon left in place adjacent to an opening shall be sufficiently lashed, locked or otherwise secured to prevent it from being unshipped so that it cannot be displaced by accident.

(o) Hatches shall not be open or closed while employees are in the square of the hatch below.

(p) Before loads or empty lifting gear are raised, lowered, or swung, clear and sufficient advance warning shall be given to employees in the vicinity of such operations.

(q) At no time shall an employee be permitted to place himself in a hazardous position between a swinging load and a fixed object.

§ 1915.117 Qualifications of operators.

Paragraphs (a) and (d) of this section shall apply to ship repairing and shipbuilding only. Paragraphs (b) and (c) of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) When ship's gear is used to hoist materials aboard, a competent person shall determine that the gear is properly rigged, that it is in safe condition, and that it will not be overloaded by the size and weight of the lift.

(b) Only those employees who understand the signs, notices, and operating instructions, and are familiar with the signal code in use, shall be permitted to operate a crane, winch, or other power operated hoisting apparatus.

(c) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate him, shall be permitted to operate a crane, winch or other power operated hoisting apparatus.

(d) No minor under eighteen (18) years of age shall be employed in occupations involving the operation of any power-driven hoisting apparatus or assisting in such operations by work such as hooking on, loading slings, rigging gear, etc.

§ 1915.118 Tables.

The provisions of this section apply to ship repairing, shipbuilding and shipbreaking.

TABLE E-1—DIMENSIONS AND SPACING OF WOOD INDEPENDENT-POLE SCAFFOLD MEMBERS

Structural members	Light duty (Up to 25 pounds per square foot)—Height in feet			Heavy duty (25 to 75 pounds per square foot)—Height in feet		
	24 or less	24–40	40–60	24 or less	24–40	40–60
Poles or uprights (in inches)	2 x 4	3 x 4 or 2 x 6	4 x 4	3 x 4	4 x 4	4 x 6
Bearers (in inches)	2 x 6	2 x 6	2 x 6	2 x 8	2 x 8	2 x 10
Ledgers (in inches)	2 x 6	2 x 6	2 x 6	2 x 8	2 x 8	2 x 8
Stringers (not supporting bearers) (in inches)	1 x 6	1 x 6	1 x 6	1 x 6	1 x 6	1 x 6
Braces (in inches)	1 x 4	1 x 6	1 x 6	1 x 6	1 x 6	1 x 6
Pole spacing—longitudinally (in feet)	7½	7½	7½	7	7	7
Pole spacing—transversely (in feet)	6½ min	7½ min	8½ min	6½	10	10
Ledger spacing—vertically (in feet)	7	7	7	4½	4½	4½

TABLE E-2—SPECIFICATIONS FOR SIDE RAILS OF LADDERS

Length (in feet)	Cross section (in inches)	
	At ends	At center
15	1⅛ x 2¾	1⅛ x 3¾
16	1⅛ x 2¾	1⅛ x 3¾
18	1⅛ x 3	1⅛ x 4
20	1⅛ x 3	1⅛ x 4
24	1⅛ x 3	1⅛ x 4½

TABLE E-3—SPECIFICATIONS FOR THE CONSTRUCTION OF HORSES

Structural members	Height in feet		
	Up to 10	10 to 16	16 to 20
	inches	*inches*	*inches*
Legs	2 x 4	3 x 4	4 x 6
Bearers or headers	2 x 6	2 x 8	4 x 6
Crossbraces	2 x 4 or 1 x 8	2 x 4	2 x 6
Longitudinal braces	2 x 4	2 x 6	2 x 6

TABLE E–4—SAFE CENTER LOADS FOR SCAFFOLD PLANK OF 1,100 POUNDS FIBRE STRESS

Span in feet	Lumber dimensions in inches									
	A	B	A	B	A	B	A	B	A	B
	2 x 10	1⅝ x 9½	2 x 12	1⅝ x 11⅛	3 x 8	2⅝ x 7½	3 x 10	2⅝ x 9½	3 x 12	2⅝ x 11⅛
6	256		309		526		667		807	
8	192		232		395		500		605	
10	153		186		316		400		484	
12	128		155		263		333		404	
14	110		133		225		286		346	
16			116		197		250		303	

(A)—Rough lumber.
(B)—Dressed lumber.

TABLE G–1—MANILA ROPE

[In pounds or tons of 2,000 pounds]

Circumferences	Diameter in inches	Single leg	60° bridle	45° bridle	30° bridle
		lbs.	lbs.	lbs.	lbs.
¾	¼	120	204	170	120
1	5/16	200	346	282	200
1⅛	⅜	270	467	380	270
1¼	7/16	350	605	493	350
1⅜	1 1/32	450	775	635	450
1½	½	530	915	798	530
1¾	9/16	690	1190	973	690
2	⅝	880	1520	1240	880
2¼	¾	1080	1870	1520	1080
2½	1 5/16	1300	2250	1830	1300
2¾	⅞	1540	2660	2170	1540
3	1	1800	3120	2540	1800
		Tons	Tons	Tons	Tons
3¼	1 1/16	1.0	1.7	1.4	1.0
3½	1⅛	1.2	2.1	1.7	1.2
3¾	1¼	1.35	2.3	1.9	1.35
4	1 5/16	1.5	2.6	2.1	1.5
4½	1½	1.8	3.1	2.5	1.8
5	1⅝	2.25	3.9	3.2	2.25
5½	1¾	2.6	4.5	3.7	2.6
6	2	3.1	5.4	4.4	3.1
6½	2⅛	3.6	6.2	5.1	3.6

TABLE G–2—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE AND WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
	6 x 19 Classification					
¼"	.59	.56	.53	.44	.42	.40
⅜"	1.3	1.2	1.1	.98	.93	.86
½"	2.3	2.2	2.0	1.7	1.6	1.5
⅝"	3.6	3.4	3.0	2.7	2.5	2.2
¾"	5.1	4.9	4.2	3.8	3.6	3.1
⅞"	6.9	6.6	5.5	5.2	4.9	4.1
1"	9.0	8.5	7.2	6.7	6.4	5.4
1⅛"	11	10	9.0	8.5	7.8	6.8
	6 x 37 Classification					
1⅛"	13	12	10	9.9	9.2	7.9

TABLE G-2—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE AND WIRE ROPE SLINGS—Continued

[In tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
1⅝"	16	15	13	12	11	9.6
1¾"	19	17	15	14	13	11
1⅞"	26	24	20	19	18	15
2"	33	30	26	25	23	20
2¼"	41	38	33	31	29	25

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G-3—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
6 x 19 Classification												
¼"	1.2	1.1	1.0	1.0	.97	.92	.83	.79	.75	.59	.56	.53
⅜"	2.6	2.5	2.3	2.3	2.1	2.0	1.8	1.8	1.6	1.3	1.2	1.1
½"	4.6	4.4	3.9	4.0	3.8	3.4	3.2	3.1	2.8	2.3	2.2	2.0
⅝"	7.2	6.8	6.0	6.2	5.9	5.2	5.1	4.8	4.2	3.6	3.4	3.0
¾"	10	9.7	8.4	8.9	8.4	7.3	7.2	6.9	5.9	5.1	4.8	4.2
⅞"	14	13	11	12	11	9.6	9.8	9.3	7.8	6.9	6.6	5.5
1"	18	17	14	15	15	12	13	12	10	9.0	8.5	7.2
1⅛"	23	21	18	19	18	16	16	15	13	11	10	9.0
6 x 37 Classification												
1⅛"	28	24	21	23	21	18	19	17	15	13	12	10
1¼"	32	29	25	28	25	22	22	21	18	16	15	13
1⅜"	38	35	30	33	30	26	27	25	21	19	17	15
1½"	51	47	41	44	41	35	36	33	29	26	24	20
2"	66	621	53	57	53	46	47	43	37	33	30	26
2¼"	83	76	66	72	66	57	58	54	47	41	38	33

(A)—Socket or Swaged Terminal Attachment.
(B)—Mechanical Sleeve Attachment.
(C)—Hand Tucked Splice Attachment.

TABLE G-4—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE AND WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
6 x 19 Classification						
¼"	.55	.51	.49	.41	.38	.37
⅜"	1.2	1.1	1.1	.91	.85	.80
½"	2.1	2.0	1.8	1.6	1.5	1.4
⅝"	3.3	3.1	2.8	2.5	2.3	2.1
¾"	4.8	4.4	3.9	3.6	3.3	2.9

TABLE G-4—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE AND WIRE ROPE SLINGS—Continued

[In tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
⅞"	6.4	5.9	5.1	4.8	4.5	3.9
1"	8.4	7.7	6.7	6.3	5.8	5.0
1⅛"	10	9.5	8.4	7.9	7.1	6.3
6 x 37 Classification						
1¼"	12	11	9.8	9.2	8.3	7.4
1⅜"	15	13	12	11	10	8.9
1½"	17	16	14	13	12	10
1¾"	24	21	19	18	16	14
2"	31	28	25	23	21	18

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G-5—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
6 × 19 Classification												
¼"	1.1	1.0	.99	.95	.88	.85	.77	.72	.70	.55	.51	.49
⅜"	2.4	2.2	2.1	2.1	1.9	1.8	1.7	1.6	1.5	1.2	1.1	1.1
½"	4.3	3.9	3.7	3.7	3.4	3.2	3.0	2.8	2.6	2.1	2.0	1.8
⅝"	6.7	6.2	5.6	5.8	5.3	4.8	4.7	4.4	4.0	3.3	3.1	2.8
¾"	9.5	8.8	7.8	8.2	7.6	6.6	6.7	6.2	5.5	4.6	4.4	3.8
⅞"	13	12	10	11	10	8.9	9.1	8.4	7.3	6.4	5.9	5.1
1"	17	15	13	14	13	11	12	11	9.4	8.4	7.7	6.7
1⅛"	21	19	17	18	16	14	15	13	12	10	9.5	8.4
6 × 37 Classification												
1¼"	25	22	20	21	19	17	17	16	14	12	11	9.8
1⅜"	30	27	24	26	23	20	21	19	17	15	13	12
1½"	35	32	28	30	27	24	25	22	20	17	16	14
1¾"	48	43	38	41	37	33	34	30	27	24	21	19
2"	62	55	49	53	48	43	43	39	35	31	28	25

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G-6—NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter, inches	Number of clips		Minimum spacing, inches
	Drop forged	Other material	
(1)			
½	3	4	3
⅝	3	4	3¾
¾	4	5	4½
⅞	4	5	5¼
1	4	6	6

TABLE G-6—NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS—Continued

Improved plow steel, rope diameter, inches	Number of clips		Minimum spacing, inches
	Drop forged	Other material	
1⅛	5	6	6¾
1¼	5	7	7½
1⅜	6	7	8¼
1½	6	8	9

[1] Three clips shall be used on wire size less than ⅛-inch diameter.

TABLE G-7—WROUGHT IRON CHAIN

[In pounds or tons of 2,000 pounds]

Nominal size chains stock	Single leg	60° bridle	45° bridle	30° bridle
1/8" [1]	1060	1835	1500	1060
9/64" [1]	1655	2865	2340	1655
5/32" [1]	2385	2.1	3370	2385
11/64" [1]	3250	2.8	2.3	3250
3/16"	2.1	3.7	3.0	2.1
13/64" [1]	2.7	4.6	3.8	2.7
7/32"	3.3	5.7	4.7	3.3
1/4"	4.8	8.3	6.7	4.8
5/16"	6.5	11.2	9.2	6.5
3/8"	8.5	14.7	12.0	8.5
1 7/16"	10.0	17.3	14.2	10.0
1 1/2"	12.4	21.4	17.5	12.4
1 9/16"	15.0	25.9	21.1	15.0
1 5/8"	17.3	30.8	25.2	17.8
1 3/4"	20.9	36.2	29.5	20.9
1 7/8"	24.2	42.0	34.3	24.2
1 15/16"	27.6	47.9	39.1	27.6
2"	31.6	54.8	44.8	31.6

[1] These sizes of wrought iron chain are no longer manufactured in the United States.

TABLE G-8—ALLOY STEEL CHAIN

(In tons of 2,000 pounds)

Nominal size chain stock	Single leg	60° bridle	45° bridle	30° bridle
1/4"	1.62	2.82	2.27	1.62
5/16"	3.30	5.70	4.65	3.30
3/8"	5.62	9.75	7.90	5.62
7/16"	8.25	14.25	11.65	8.25
1/2"	11.5	19.9	16.2	11.5
9/16"	14.3	24.9	20.3	14.3
5/8"	19.3	33.5	27.3	19.8
11/16"	22.2	38.5	31.5	22.2
1 1/4"	26.7	49.7	40.5	26.7
1 5/16"	33.5	58.0	47.0	33.5
1 3/8"	39.7	68.5	56.0	39.7
1 7/16"	42.5	73.5	59.5	42.5
1 1/2"	47.0	81.5	62.0	47.0

TABLE G-9—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size in inches	Maximum allowable wear in fraction of inches
1/4 (9/32)	1/64
5/16	3/64
3/8	1/64
7/16	3/64
9/16	3/32
5/8	1 1/64
1	3/64
1 1/8	1/32

TABLE G-9—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK—Continued

Chain size in inches	Maximum allowable wear in fraction of inches
1 1/8	1/4
1 5/8	9/32
1 7/8	5/16
1 3/4	1 1/32

TABLE G-10—SAFE WORKING LOADS FOR SHACKLES

[In tons of 2,000 pounds]

Material size (inches)	Pin diameter (inches)	Safe working load
1/2	5/8	1.4
5/8	3/4	2.2
3/4	1	3.2
7/8	1	4.3
1	1 1/8	5.6
1 1/8	1 1/4	6.7
1 1/4	1 3/8	8.2
1 3/8	1 1/2	10.0
1 1/2	1 5/8	11.9
1 3/4	2	16.2
2	2 1/4	21.2

TABLE I-1—FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

Operation	Shade No.
Soldering	2.
Torch Brazing	3 or 4.
Light cutting, up to 1 inch	3 or 4.
Medium cutting, 1–6 inches	4 or 5.
Heavy cutting, over 6 inches	5 or 6.
Light gas welding, up to ⅛ inch.	4 or 5.
Medium gas welding, ⅛–½ inch.	5 or 6.
Heavy gas welding, over ½ inch.	6 or 8.
Shielded Metal-Arc Welding 1/16 to 5/32-inch electrodes.	10.
Inert-gas Metal-Arc Welding (Non-ferrous) 1/16- to 5/32-inch electrodes.	11.
Shielded Metal-Arc Welding: 5/32-to ¼-inch electrodes	12.
5/16- and ⅜-inch electrodes	14.

Subpart H—Tools and Related Equipment

§ 1915.131 General precautions.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Hand lines, slings, tackles of adequate strength, or carriers such as tool bags with shoulder straps shall be provided and used to handle tools, materials, and equipment so that employees will have their hands free when using ship's ladders and access ladders. The use of hose or electric cords for this purpose is prohibited.

(b) When air tools of the reciprocating type are not in use, the dies and tools shall be removed.

(c) All portable, power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum are required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum are required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

(d) The moving parts of machinery on dry dock shall be guarded.

(e) Before use, pneumatic tools shall be secured to the extension hose or whip by some positive means to prevent the tool from becoming accidentally disconnected from the whip.

(f) The moving parts of drive mechanisms, such as gearing and belting on large portable tools, shall be adequately guarded.

(g) Headers, manifolds and widely spaced hose connection on compressed air lines shall bear the work "air" in letters at least 1 inch high, which shall be painted either on the manifold or separate hose connections, or on signs permanently attached to the manifolds or connections. Grouped air connections may be marked in one location.

(h) Before use, compressed air hose shall be examined. Visibly damaged and unsafe hose shall not be used.

§ 1915.132 Portable electric tools.

The provisions of this section sh
apply to ship repairing, shipbuildi
and shipbreaking except that pa
graph (e) of this section applies
ship repairing only.

(a) The frames of portable elect
tools and appliances, except double
sulated tools approved by Underw
ers' Laboratories, shall be ground
either through a third wire in t
cable containing the circuit conduct
or through a separate wire which
grounded at the source of the curre

(b) Grounding circuits, other th
by means of the structure of the ves
on which the tool is being used, sh
be checked to ensure that the circ
between the ground and the ground
power conductor has resistance wh
is low enough to permit sufficient c
rent to flow to cause the fuse or c
cuit breaker to interrupt the current

(c) Portable electric tools which
held in the hand shall be equipp
with switches of a type which must
manually held in the closed position

(d) Worn or frayed electric cab
shall not be used.

(e) The employer shall notify the
ficer in charge of the vessel befo
using electric power tools operat
with the vessel's current.

§ 1915.133 Hand tools.

The provisions of this section sh
apply to ship repairing, shipbuildi
and shipbreaking.

(a) Employers shall not issue
permit the use of unsafe hand tools.

(b) Wrenches, including cresce
pipe, end and socket wrenches, sh
not be used when jaws are sprung
the point that slippage occurs.

(c) Impact tools, such as drift pi
wedges, and chisels, shall be kept fr
of mushroomed heads.

(d) The wooden handles of to
shall be kept free of splinters or crac
and shall be kept tight in the tool.

§ 1915.134 Abrasive wheels.

This section shall apply to ship
pairing, shipbuilding and shipbre
ing.

(a) Floor stand and bench mount
abrasive wheels used for extern
grinding shall be provided with safe

guards (protection hoods). The maximum angular exposure of the grinding wheel periphery and sides shall be not more than 90 degrees, except that when work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 125 degrees. In either case the exposure shall begin not more than 65 degrees above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the effect of a bursting wheel.

(b) Floor and bench mounted grinders shall be provided with work rests which are rigidly supported and readily adjustable. Such work rests shall be kept a distance not to exceed ⅛ inch from the surface of the wheel.

(c) Cup type wheels used for external grinding shall be protected by either a revolving cup guard or a band type guard in accordance with the provisions of the United States of America Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7.1. All other portable abrasive wheels used for external grinding shall be provided with safety guards (protection hoods) meeting the requirements of paragraph (e) of this section, except as follows:

(1) When the work location makes it impossible, in which case a wheel equipped with safety flanges as described in paragraph (f) of this section shall be used.

(2) When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used.

(d) Portable abrasive wheels used for internal grinding shall be provided with safety flanges (protection flanges) meeting the requirements of paragraph (f) of this section, except as follows:

(1) When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used.

(2) If the wheel is entirely within the work being ground while in use.

(e) When safety guards are required, they shall be so mounted as to maintain proper alignment with the wheel, and the guard and its fastenings shall be of sufficient strength to retain fragments of the wheel in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180 degrees.

(f) When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges of a type and design and properly assembled so as to insure that the pieces of the wheel will be retained in case of accidental breakage shall be used.

(g) All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects.

(h) Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place.

(i) The power supply shall be sufficient to maintain the rated spindle speed under all conditions of normal grinding. The rated maximum speed of the wheel shall not be exceeded.

(j) All employees using abrasive wheels shall be protected by eye protection equipment in accordance with the requirements of § 1915.151 (a) and (b), except when adequate eye protection is afforded by eye shields which are permanently attached to the bench or floor stand.

§ 1915.135 Powder actuated fastening tools.

(a) The section shall apply to ship repairing and shipbuilding only.

(b) General precautions. (1) Powder actuated fastening tools shall be tested each day before loading to ensure that the safety devices are in proper working condition. Any tool found not to be in proper working order shall be immediately removed from service until repairs are made.

(2) Powder actuated fastening tools shall not be used in an explosive or flammable atmosphere.

(3) All tools shall be used with the type of shield or muzzle guard appropriate for a particular use.

(4) Fasteners shall not be driven into very hard or brittle materials such as cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick or hollow title.

(5) Fasteners shall not be driven into soft materials unless such materials

are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the opposite side.

(6) Unless a special guard, fixture or jig is used, fasteners shall not be driven directly into materials such as brick or concrete within 3 inches of the unsupported edge or corner, or into steel surfaces within ½ inch of the unsupported edge or corner. When fastening other material, such as 2 x 4 inch lumber to a concrete surface, fasteners of greater than 3/32 inch shank diameter shall not be used and fasteners shall not be driven within 2 inches of the unsupported edge or corner of the work surface.

(7) Fasteners shall not be driven through existing holes unless a positive guide is used to secure accurate alignment.

(8) No attempt shall be made to drive a fastener into a spalled area caused by an unsatisfactory fastening.

(9) Employees using powder actuated fastening tools shall be protected by eye protection equipment in accordance with the requirements of § 1915.151 (a) and (b).

(c) Instruction of operators. Before employees are permitted to use powder actuated tools, they shall have been thoroughly instructed by a competent person with respect to the requirements of paragraph (b) of this section and the safe use of such tools as follows:

(1) Before using a tool, the operator shall inspect it to determine that it is clean, that all moving parts operate freely and that the barrel is free from obstructions.

(2) When a tool develops a defect during use, the operator shall immediately cease to use it and shall notify his supervisor.

(3) Tools shall not be loaded until just prior to the intended firing time and the tool shall not be left unattended while loaded.

(4) The tool, whether loaded or empty, shall not be pointed at any person, and hands shall be kept clear of the open barrel end.

(5) In case of a misfire, the operator shall hold the tool in the operating position for at least 15 seconds and shall continue to hold the muzzle against the work surface during disassembly or opening of the tool and removal of the powder load.

(6) Neither tools nor powder charges shall be left unattended in places where they would be available to unauthorized persons.

§ 1915.136 Internal combustion engines, other than ship's equipment.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) When internal combustion engines furnished by the employer are used in a fixed position below decks, for such purposes as driving pumps, generators, and blowers, the exhaust shall be led to the open air, clear of any ventilation intakes and openings through which it might enter the vessel.

(b) All exhaust line joints and connections shall be checked for tightness immediately upon starting the engine, and any leaks shall be corrected at once.

(c) When internal combustion engines on vehicles, such as forklifts and mobile cranes, or on portable equipment such as fans, generators, and pumps exhaust into the atmosphere below decks, the competent person shall make tests of the carbon monoxide content of the atmosphere as frequently as conditions require to ensure that dangerous concentrations do not develop. Employees shall be removed from the compartment involved when the carbon monoxide concentration exceeds 50 parts per million (0.005%). The employer shall use blowers sufficient in size and number and so arranged as to maintain the concentration below this allowable limit before work is resumed.

Subpart I—Personal Protective Equipment

§ 1915.151 Eye protection.

(a) *General precautions.* (1) All eye protection equipment required by these regulations shall meet the specifications prescribed by the American Standard Safety Code for Head, Eye and Respiratory Protection, Z2.1.

(2) Eye protection equipment shall be maintained in good condition.

(3) Eye protection equipment which has previously been used shall be cleaned and disinfected before it is issued by the employer to another employee.

(4) Employees who wear corrective spectacles while engaged in eye hazardous work shall be protected by eye protection equipment of a type which can be worn over personnel spectacles, except that glasses with prescription ground safety lenses may be worn in lieu of cover goggles when such glasses provide suitable protection against the hazard involved.

(b) *Protection against impact.* (1) In any operations such as chipping, caulking, drilling, riveting, grinding, and pouring babbitt metal, in which the eye hazard of flying particles, molten metal, or liquid chemical exists, employees shall be protected by suitable face shields or goggles meeting the requirements of paragraph (a) of this section.

(c) *Protection against radiant energy.* (1) In any operation in which the eye hazard of injurious light rays or other radiant energy exists, depending upon the intensity of the radiation to which employees are exposed, they shall be protected by spectacles, cup goggles, helmets, hand shields, or face shields equipped with filter lenses meeting the requirements of paragraphs (a) and (c)(2) of this section.

(2) Filter lenses shall be of a shade number appropriate to the type of work to be performed as indicated in Table I-1 in § 1915.118, except that variation of one or two shade numbers are permissible to suit individual preferences.

(3) If filter lenses are used in the goggles worn under the helmet, the shade number of the lens in the helmet may be reduced so that the sum of the shade numbers of the two lenses will equal the value shown in Table I-1 in § 1915.118.

§ 1915.152 Respiratory protection.

(a) *General.* (1) All respiratory equipment required by this Part shall be approved for the use for which it is intended by the Mine Safety and Health Administration and the National Institute of Occupational Safety and Health pursuant to the provisions of 30 CFR Part 11. Respiratory protective equipment shall be used only for the purpose intended and no modifications of the equipment shall be made.

(2) Respiratory protective equipment shall be inspected regulatory and maintained in good condition. Gas mask canisters and chemical cartridges shall be replaced as necessary so as to provide complete protection. Mechanical filters shall be cleaned or replaced as necessary so as to avoid undue resistance to breathing.

(3) Respiratory protective equipment which has been previously used shall be cleaned and disinfected before it is issued by the employer to another employee. Emergency rescue equipment shall be cleaned and disinfected immediately after each use.

(4) Employees required to use respiratory protective equipment approved for use in atmospheres immediately dangerous to life shall be thoroughly trained in its use. Employees required to use other types of respiratory protective equipment shall be instructed in the use and limitations of such equipment.

(5) When an air line respirator is used, the air line shall be fitted with a pressure regulating valve and a filter which will remove oil water and rust particles. The air intake shall be from a source which is free from all contaminants, such as the exhaust from internal combustion engines.

(6) In all cases when an employee is stationed outside a compartment, tank or space as a tender or safety man for men working inside in an atmosphere immediately dangerous to life, the tender shall have immediately available for emergency use respiratory protective equipment equivalent to that required for the men in the compartment. When a tender is stationed outside a compartment for men working inside in an atmosphere not immediately dangerous to life, the tender shall wear respiratory protective equipment equivalent to that required for the men in the compartment if he is exposed for prolonged periods to the same concentration of atmospheric contaminants.

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(b) *Protection in atmospheres immediately dangerous to life.* (1) Atmospheres immediately dangerous to life are those which contain less than 16.5 percent oxygen, or which by reason of the high toxicity of the contaminant, as in fumigation, or high concentration of the contaminant, as with carbon dioxide, would endanger the life of a person breathing them for even a short period of time.

(2) In atmospheres immediately dangerous to life the only approved types of respiratory protective equipment are the following:

(i) Self-contained breathing apparatus, in which the wearer carries with him a supply of oxygen, air, or an oxygen generating material.

(ii) Hose mask with blower, in which a hand or motor operated blower supplies air at high volume and low pressure through a large diameter hose through which the wearer can draw air in case the blower fails.

(iii) If there is known to be more than 16 percent oxygen and less than 2 percent gas by volume, a gas mask equipped with a canister approved for the particular type gas involved.

NOTE: A gas mask offers absolutely no protection in an atmosphere deficient in oxygen.

(3) Work in atmospheres immediately dangerous to life shall be performed only in an emergency, as when rescuing a man who has been overcome or when shutting off a source of contamination that cannot otherwise be controlled. When an employee enters such an atmosphere he shall be provided with and use an adequate, attended life line.

(4) In the vicinity of each vessel in which there is a danger of employees being exposed to an atmosphere immediately dangerous to life, the employer shall have on hand and ready for use respiratory protective equipment approved for such use. When such equipment is required, one or more persons shall be thoroughly trained in the use of the equipment.

(c) *Protection against gaseous contaminants not immediately dangerous to life.* (1) Gaseous contaminants not immediately dangerous to life are gases present in concentrations that could be breathed for a short period without endangering the life of a person breathing them, but which might produce discomfort and possible injury after a prolonged single exposure or repeated short exposures.

(2) When employees are exposed to a gaseous contaminated atmosphere not immediately dangerous to life, they shall be protected by respiratory protective equipment approved for use in the type and concentration of the gaseous contaminant as follows:

(i) In high or unknown concentrations, a hose mask or an air line respirator. The use of either a hose mask or an air line respirator in lower concentrations is permissible.

(ii) In concentrations of ammonia of less than 3 percent, or of other gases less than 2 percent, by volume, a canister type gas mask equipped with the proper type of canister. Different canisters are approved for specific use against the following gases or groups of gases: Acid gases, hydrocyanic acid gas, chlorine gas, organic vapors, ammonia gas, carbon monoxide, or combination of the above.

(iii) In low concentrations (less than 0.1 percent by volume), a chemical cartridge respirator equipped with the type of cartridge approved for use against the particular gases or groups of gases listed in paragraph (c)(2)(ii) of this section.

(d) *Protection against particulate contaminants not immediately dangerous to life.* (1) When employees are exposed to unsafe concentrations of particular contaminants, such as dusts and fumes, mists and fogs or combinations of solids and liquids, they shall be protected by either air line or filter respirators, except as otherwise provided in this part.

(2) Filter respirators shall be equipped with the proper type of filter. Different filters are approved for specific protection against groups of contaminants, as follows:

(i) Pneumoconiosis-producing dust and nuisance dust filters which provide respiratory protection against pneumoconiosis-producing dusts, such as aluminum, cellulose, cement, charcoal, coal, coke, flour, gypsum, iron ore, limestone and wood.

(ii) Toxic dust filters which provide respiratory protection against toxic

dusts that are not significantly more toxic than lead, such as arsenic, cadmium, chromium, lead, manganese, selenium, vanadium, and their compounds.

(iii) Mist filters which provide respiratory protection against pneumoconiosis-producting mists, chromic acid mists, and nuisance mists.

(iv) Fume filters which provide respiratory protection against fumes (solid dispersoids or particulate matter formed by the condensation of vapors, such as those from heated metals and other substances).

(v) Filters which provide respiratory protection against combinations of two or more of the contaminants described in paragraphs (d)(2) (i) through (iv) of this section.

(e) *Protection against combinations of gaseous and particulate contaminants not immediately dangerous to life.* (1) When employees are exposed to combinations of gaseous and particulate contaminants not immediately dangerous to life, as in spray painting they shall be protected by respiratory protective equipment approved for use in the type and concentration of the contaminants, as follows:

(i) In high or unknown concentrations, a hose mask or an air line respirator. The use of either a hose mask or an air line respirator is permissible in lower concentrations.

(ii) In concentrations of gaseous contaminants of less than 2 percent by volume, a canister type gas mask with a combination canister approved for the particular type of gaseous contaminant as specified in paragraph (e)(2) of this section and a filter for the particular type of particulate contaminant as specified in paragraph (e)(1) of this section.

(iii) In low concentrations of gaseous contaminants (less than 0.1 percent by volume) a respirator equipped with the type of cartridge and filter as specified in paragraph (e)(ii) of this section.

§ 1915.153 Head, foot and body protection.

(a) When employees are working in areas where there is danger of falling objects they shall be protected by protective hats.

(b) Protective hats shall meet the specifications contained in the United States of America Standard Safety Code for Head, Eye, and Respiratory Protection, Z2.1. Hats without dielectric strength shall not be used where there is the possibility of contact with electric conductors.

(c) Protective hats which have been previously worn shall be cleaned and disinfected before they are issued by the employer to another employee.

(d) The employer shall arrange through means such as vendors or local stores, or otherwise, to make safety shoes readily available to all employees, and shall encourage their use. Metal toe caps from which the covering has been worn shall be insulated when employees are working on exposed energized circuits of the vessel's electrical system.

(e) Employees shall not be permitted to wear excessively greasy clothing when performing hot work operations.

(f) Employees shall be protected by suitable gloves when engaged in operations hazardous to their hands.

§ 1915.154 Lifesaving equipment.

(a) *Personal flotation devices.* (1) Any personal flotation device shall be approved by the United States Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or Type V PFD or their equivalent, pursuant to 46 CFR Part 160 (Coast Guard Lifesaving Equipment Specifications) and 33 CFR 175.23 (Coast Guard table devices equivalent to personal flotation devices).

(2) Prior to each use, personal flotation devices shall be inspected for dry rot, chemical damage, or other defects which may affect their strength and buoyancy. Defective personal flotation devices shall not be used.

(b) *Safety belts and lifelines.* (1) Safety belts shall be equipped with lifelines which in use are secured with a minimum of slack to a fixed structure.

(2) Prior to each use, belts and lifelines shall be inspected for dry rot, chemical damage, or other defects which may affect their strength. Defective belts and lifelines shall not be used.

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(3) When employees are working in any location requiring a safety belt and a lifeline, care shall be exercised to ensure that the lifeline is not cut, pinched, or led over a sharp edge. In hot work operations or those involving the use of acids, solvents, or caustics, the line shall be kept clear to avoid its being burned or weakened. In order to keep the lifeline continuously attached with a minimum of slack to a fixed structure the attachment point of the lifeline shall be appropriately changed as the work progresses.

(c) *Life rings and ladders.* (1) At least three 30 inch Coast Guard approved life rings with lines attached shall be kept in easily visible and readily accessible places aboard each vessel afloat on which work is being performed. Life rings shall be located, one forward, one aft, and one on the gangway, except on vessels, under 200 feet in length, in which case one at the gangway will be sufficient.

(2) At least one life ring with a line attached shall be located on each staging float alongside a vessel on which work is being performed.

(3) At least 90 feet of line shall be attached to each life ring. Life rings and lines shall be maintained in good condition.

(4) In the vicinity of each vessel afloat in which work is being performed there shall be at least one portable or permanent ladder of sufficient length to assist employees to reach safety in the event that they fall into the water.

Subpart J—Ship's Machinery and Piping Systems

§ 1915.161 Scope and application of subpart.

The standards contained in this subpart shall apply to ship repairing and shipbuilding and shall not apply to shipbreaking.

§ 1915.162 Ship's boilers.

(a) Before work is performed in the fire, steam, or water spaces of a boiler where employees may be subject to injury from the direct escape of a high temperature medium such as steam, or water, oil, or other medium at a high temperature entering from an interconnecting system, the employer shall insure that the following steps are taken:

(1) The isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, blanked, and tagged indicating that employees are working in the boiler. This tag shall not be removed nor the valves unblanked until it is determined that this may be done without creating a hazard to the employees working in the boiler, or until the work in the boiler is completed. Where valves are welded instead of bolted at least two isolation and shutoff valves connecting the dead boiler with the live system or systems shall be secured, locked, and tagged.

(2) Drain connections to atmosphere on all of the dead interconnecting systems shall be opened for visual observation of drainage.

(3) A warning sign calling attention to the fact that employees are working in the boilers shall be hung in a conspicuous location in the engine room. This sign shall not be removed until it is determined that the work is completed and all employees are out of the boilers.

§ 1915.163 Ship's piping systems.

(a) Before work is performed on a valve, fitting, or section of piping in a piping system where employees may be subject to injury from the direct escape of steam, or water, oil, or other medium at a high temperature, the employer shall insure that the following steps are taken:

(1) The isolation and shutoff valves connecting the dead system with the life system or systems shall be secured, blanked, and tagged indicating that employees are working on the systems. This tag shall not be removed nor the valves unblanked until it is determined that this may be done without creating a hazard to the employees working on the system, or until the work on the system is completed. Where valves are welded instead of bolted at least two isolation and shutoff valves connecting the dead system with the live system or systems shall be secured, locked, and tagged.

(2) Drain connections to atmosphere on all of the dead interconnecting systems shall be opened for visual observation of drainage.

§ 1915.164 Ship's propulsion machinery.

(a) Before work is performed on the main engine, reduction gear, or connecting accessories, the employer shall ensure that the following steps are taken:

(1) The jacking gear shall be engaged to prevent the main engine from turning over. A sign shall be posted at the throttle indicating that the jacking gear is engaged. This sign shall not be removed until the jacking gear can be safely disengaged.

(2) If the jacking gear is steam driven, the stop valves to the jacking gear shall be secured, locked, and tagged indicating that employees are working on the main engine.

(3) If the jacking gear is electrically driven, the circuit controlling the jacking gear shall be deenergized by tripping the circuit breaker, opening the switch or removing the fuse, whichever is appropriate. The breaker, switch, or fuse location shall be tagged indicating that employees are working on the main engine.

(b) Before the jacking engine is operated, the following precautions shall be taken:

(1) A check shall be made to ensure that all employees, equipment, and tools are clear of the engine, reduction gear, and its connecting accessories.

(2) A check shall be made to ensure that all employees, equipment and tools are free of the propeller.

(c) Before work is started on or in the immediate vicinity of the propeller, a warning sign calling attention to the fact that employees are working in that area shall be hung in a conspicuous location in the engine room. This sign shall not be removed until it is determined that the work is completed and all employees are free of the propeller.

(d) Before the main engine is turned over (e.g., when warming up before departure or testing after an overhaul) a check shall be made to ensure that all employees, equipment, and tools are free of the propeller.

§ 1915.165 Ship's deck machinery.

(a) Before work is performed on the anchor windlass or any of its attached accessories, the employer shall ensure that the following steps are taken:

(1) The devil claws shall be made fast to the anchor chains.

(2) The riding pawls shall be in the engaged position.

(3) In the absence of devil claws and riding pawls, the anchor chains shall be secured to a suitable fixed structure of the vessel.

Subpart K—Portable, Unfired Pressure Vessels, Drums and Containers, Other Than Ship's Equipment

§ 1915.171 Scope and application of subpart.

The standards contained in this subpart shall apply to ship repairing and shipbuilding and shall not apply to shipbreaking.

§ 1915.172 Portable air receivers and other unfired pressure vessels.

(a) Portable, unfired pressure vessels, built after the effective date of this regulation, shall be marked and reported indicating that they have been designed and constructed to meet the standards of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XIII, Rules for Construction of Unfired Pressure Vessels, 1963. They shall be subjected to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

(b) Portable, unfired pressure vessels, not built to the code requirements of paragraph (a) of this section, and built prior to the effective date of this regulation, shall be examined quarterly by a competent person. They shall be subjected yearly to a hydrostatic pressure test of one and one-half times the working pressure of the vessels.

(c) The relief valves on the portable, unfired pressure vessels in paragraphs (a) and (b) of this section shall be set to the safe working pressure of the vessels, or set to the lowest safe work-

ing pressure of the systems, whichever is lower.

(d) A certification record of such examinations and tests made in compliance with the requirements of paragraphs (a) and (b) of this section shall be maintained. The certification record shall include the date of examinations and tests, the signature of the person who performed the examinations or tests and the serial number, or other identifier, of the equipment examined and tested.

[47 FR 16986, Apr. 20, 1982, as amended at 51 FR 34562, Sept. 29, 1986]

§ 1915.173 Drums and containers.

(a) Shipping drums and containers shall not be pressurized to remove their contents.

(b) A temporarily assembled pressurized piping system conveying hazardous liquids or gases shall be provided with a relief valve and by-pass to prevent rupture of the system and the escape of such hazardous liquids or gases.

(c) Pressure vessels, drums and containers containing toxic or flammable liquids or gases shall not be stored or used where they are subject to open flame, hot metal, or other sources of artificial heat.

(d) Unless pressure vessels, drums and containers of 30 gallon capacity or over containing flammable or toxic liquids or gases are placed in an out-of-the-way area where they will not be subject to physical injury from an outside source, barriers or guards shall be erected to protect them from such physical injury.

(e) Containers of 55 gallons or more capacity containing flammable or toxic liquid shall be surrounded by dikes or pans which enclose a volume equal to at least 35 percent of the total volume of the containers.

(f) Fire extinguishers adequate in number and suitable for the hazard shall be provided. These extinguishers shall be located in the immediate area where pressure vessels, drums and containers containing flammable liquids or gases are stored or in use. Such extinguishers shall be ready for use at all times.

Subpart L—Electrical Machinery

§ 1915.181 Electrical circuits and distribution boards.

(a) The provisions of this section shall apply to ship repairing and shipbuilding and shall not apply to shipbreaking.

(b) Before an employee is permitted to work on an electrical circuit, except when the circuit must remain energized for testing and adjusting, the circuit shall be deenergized and checked at the point at which the work is to be done to insure that it is actually deenergized. When testing or adjusting an energized circuit a rubber mat, duck board, or other suitable insulation shall be used underfoot where an insulated deck does not exist.

(c) Deenergizing the circuit shall be accomplished by opening the circuit breaker, opening the switch, or removing the fuse, whichever method is appropriate. The circuit breaker, switch, or fuse location shall be tagged to indicate that an employee is working on the circuit. Such tags shall not be removed nor the circuit energized until it it definitely determined that the work on the circuit has been completed.

(d) When work is performed immediately adjacent to an open-front energized board or in back of an energized board, the board shall be covered or some other equally safe means shall be used to prevent contact with any of the energized parts.

PART 1917—MARINE TERMINALS

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AUTHORITY: Sec. 41 Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable; 29 CFR Part 1911.

Section 1917.28 also issued under 5 U.S.C. 553.

SOURCE: 48 FR 30909, July 5, 1983, unless otherwise noted.

Subpart A—Scope and Definitions

§ 1917.1 Scope and applicability.

(a) The regulations of this part apply to employment within a marine terminal as defined in § 1917.2(u), including the loading, unloading, movement or other handling of cargo, ship's stores or gear within the terminal or into or out of any land carrier, holding or consolidation area, or any other activity within and associated with the overall operation and functions of the terminal, such as the use and routine maintenance of facilities and equipment.

(1) The provisions of this Part 1917 do not apply to the following:

(i) Facilities used solely for the bulk storage, handling and transfer of flammable, non-flammable and combustible liquids and gases.

(ii) Facilities subject to the regulations of the Office of Pipeline Safety Regulation of the Materials Transportation Bureau, Department of Transportation, to the extent such regulations apply.

(iii) Fully automated bulk coal handling facilities contiguous to electrical power generating plants.

(2) Part 1910 of this chapter does not apply to marine terminals except for the following provisions:

(i) *Electrical.* Subpart S;

(ii) *Toxic and hazardous substances.* Subpart Z applies where specifically referenced in this Part 1917, except that the requirements of Subpart Z do not apply when a substance or cargo is contained within a sealed, intact means of packaging or containment complying with Department of Transportation or International Maritime Organization requirements;[1]

(iii) *Noise.* Subpart G, § 1910.95;

(iv) *Commercial diving operations.* Subpart T;

(v) *Safety requirements for scaffolding.* Subpart D, § 1910.28;

(vi) *Abrasive blasting.* Subpart G, § 1910.94(a);

(vii) *Access to employee exposure and medical records.* Subpart C, § 1910.20; and

(viii) *Respiratory protection.* Subpart I, § 1910.134.

(ix) *Servicing multi-piece and single piece rim wheels.* Subpart N, § 1910.177.

(x) *Grain handling facilities.* Subpart R, § 1910.272.

[48 FR 30909, July 5, 1983, as amended at 52 FR 36026, Sept. 25, 1987; 52 FR 49624, Dec. 31, 1987]

§ 1917.2 Definitions.

(a) "Apron" means that open portion of a marine terminal immediately adjacent to a vessel berth and used in the direct transfer of cargo between the terminal and vessel.

(b) "Authorized," in reference to an employee's assignment, means selected by the employer for that purpose.

(c) "Cargo door" (transit shed door) means a door designed to permit transfer of cargo to and from a marine terminal structure.

(d) "Cargo packaging" means any method of containment for shipment, including cases, cartons, crates and sacks, but excluding large units such as intermodal containers, vans or similar devices.

(e) "Confined space" means a space having all of the following characteristics:

(1) Small size;

(2) Severely limited natural ventilation;

(3) Capability to accumulate or contain a hazardous atmosphere;

(4) Exits that are not readily accessible; and

(5) A design not meant for continuous human occupancy.

Examples of confined spaces are intermodal tank containers, brailwater tanks and portable tanks.

(f) "Conveyor" means a device designed exclusively for transporting bulk materials, packages or objects in a predetermined path and having fixed or selective points of loading or discharge.

(g) "Danger zone" means any place in or about a machine or piece of equipment where an employee may be struck by or caught between moving parts, caught between moving and stationary objects or parts of the machine, caught between the material and a moving part of the machine, burned by hot surfaces or exposed to electric shock. Examples of danger zones are nip and shear points, shear lines, drive mechanisms, and areas beneath counterweights.

(h) "Designated person" means a person who possesses specialized abilities in a specific area and is assigned by the employer to perform a specific task in that area.

(i) "Dock" means a wharf or pier forming all or part of a waterfront facility, including marginal or quayside berthing facilities; not to be confused with "loading dock" as at a transit shed or container freight station, or with the body of water between piers or wharves.

(j) "Dockboard" (bridge plate or car plate) means a device utilized to span the gap between railroad cars, or between railroad cars or highway vehicles and the loading dock or platform.

[1] The International Maritime Organization publishes the International Maritime Dangerous Goods Code to aid compliance with the International legal requirements of the International Convention for the Safety of Life at Sea, 1960.

A car plate may be fixed, adjustable, portable, powered or unpowered.

(k) "Enclosed space" means an indoor space, other than a confined space, that may contain or accumulate a hazardous atmosphere due to inadequate natural ventilation. Examples of enclosed spaces are trailers, railcars, and storage rooms.

(l) "Examination," as applied to material handling devices required by this part to be certificated, means a comprehensive survey consisting of the criteria outlined in 29 CFR 1919.71(d) as applicable to the type of gear or device. The examination is supplemented by a unit proof test in the case of a quadrennial survey.

(m) "Flammable atmosphere" means an atmosphere containing more than 10 percent of the lower flammable limit of a flammable or combustible vapor or dust mixed with air.

(n) "Front-end attachments." (1) As applied to power-operated industrial trucks, means the various devices, such as roll clamps, rotating and side-shifting carriages, magnets, rams, crane arms or booms, load stabilizers, scoops, buckets and dumping bins, attached to the load end for handling lifts as single or multiple units.

(2) As applied to cranes, means various attachments applied to the basic machine for the performance of functions such as lifting, clamshell or magnet services.

(o) "Fumigant" is a substance or mixture of substances, used to kill pests or prevent infestation, which is a gas or is rapidly or progressively transformed to the gaseous state, even though some nongaseous or particulate matter may remain and be dispersed in the treatment space.

(p) "Hazardous cargo, material, substance or atmosphere" means:

(1) Any substance listed in 29 CFR Part 1910, Subpart Z;

(2) Any material in the Hazardous Materials Table and Hazardous Materials Communications Regulations of the Department of Transportation, 49 CFR Part 172;

(3) Any article not properly described by a name in the Hazardous Materials Table and Hazardous Materials Communications Regulations of the Department of Transportation, 49 CFR Part 172 but which is properly classified under the definition of those categories of dangerous articles given in 49 CFR Part 173; or

(4) Any atmosphere with an oxygen content of less than 19.5%.

(q) "House falls" means spans and supporting members, winches, blocks, and standing and running rigging forming part of a marine terminal and used with a vessel's cargo gear to load or unload by means of married falls.

(r) "Inspection," as applied to material handling devices required by this part to be certificated, means a complete visual examination of all visible parts of the device.

(s) "Intermodal container" means a reusable cargo container of rigid construction and rectangular configuration, intended to contain one or more articles of cargo or bulk commodities for transportation by water and one or more other transport modes without intermediate cargo handling. The term includes completely enclosed units, open top units, fractional height units, units incorporating liquid or gas tanks and other variations fitting into the container system, demountable or with attached wheels. It does not include cylinders, drums, crates, cases, cartons, packages, sacks, unitized loads or any other form of packaging.

(t) "Loose gear" means removable and replaceable components of equipment or devices which may be used with or as a part of assembled material handling units for purposes such as making connections, changing line direction and multiplying mechanical advantage. Examples are shackles and snatch blocks.

(u) "Marine Terminal" means wharves, bulkheads, quays, piers, docks and other berthing locations and adjacent storage or contiguous areas and structures associated with the primary movements of cargo or materials from vessel to shore or shore to vessel including structures which are devoted to receiving, handling, holding, consolidation and loading or delivery of waterborne shipments and passengers, including areas devoted to the maintenance of the terminal or equipment. The term does not include production or manufacturing areas having their own docking facilities and

located at a marine terminal nor does the term include storage facilities directly associated with those production or manufacturing areas.

Subpart B—Marine Terminal Operations

§ 1917.11 Housekeeping.

(a) Active work areas shall be kept free of equipment and materials not in use, and clear of debris, projecting nails, strapping and other sharp objects not necessary for the work in progress.

(b) Hatch beams, covers and pontoons placed in terminal working areas shall be stowed in stable piles with beams secured against tipping or falling. Alternatively, beams may be laid on their sides. When beams and pontoons are stowed in tiers more than one high, dunnage or other suitable material shall be used under and between tiers.

(c) Cargo and material shall not obstruct access to vessels, cranes, vehicles or buildings. Means of access and egress within buildings shall be similarly unobstructed.

§ 1917.12 Slippery conditions.

The employer shall eliminate, to the extent possible, conditions causing slippery working and walking surfaces in immediate work areas used by employees.

§ 1917.13 Slinging.

(a) Drafts shall be safely slung before being hoisted. Loose dunnage or debris hanging or protruding from loads shall be removed.

(b) Bales of cotton, wool, cork, wood pulp, gunny bags or similar articles shall be hoisted only by straps strong enough to support the weight of the bale. At least two hooks, each in a separate strap, shall be used.

(c) Unitized loads bound by bands or straps may be hoisted by the banding or strapping only if the banding or strapping is suitable for hoisting and is strong enough to support the weight of the load.

(d) Additional means of hoisting shall be employed to ensure safe lifting of unitized loads having damaged banding or strapping.

(e) Case hooks shall be used only with cases designed to be hoisted by these hooks.

(f) Loads requiring continuous manual guidance during handling shall be guided by guide ropes (tag lines) that are long enough to control the load.

(g) Intermodal containers shall be handled in accordance with § 1917.71(e).

§ 1917.14 Stacking of cargo and pallets.

Cargo, pallets and other material stored in tiers shall be stacked in such a manner as to provide stability against sliding and collapse.

§ 1917.15 Coopering.

Repair and reconditioning of damaged or leaking cargo packaging (coopering) shall be performed so as not to endanger employees.

§ 1917.16 Line handling. (See also § 1917.95(b)).

(a) In order to provide safe access for handling lines while mooring and unmooring vessels, cargo or material shall not be stowed or vehicles placed where they obstruct the work surface to be used.

(b) When stringpiece or apron width is insufficient for safe footing, grab lines or rails shall be installed on the sides of permanent structures. ("Stringpiece" means a narrow walkway between the water edge of a berth and a shed or other structure.)

§ 1917.17 Railroad facilities.

(a) Work shall be performed in railcars only if floors of the railcars are in visibly safe condition for the work activity being conducted and equipment being used.

(b) A route shall be established to allow employees to pass to and from places of employment without passing under, over or through railcars, or between cars less than 10 feet (3 m) apart on the same track.

(c) The employer shall direct that no employees remain in railcars after work is concluded.

(d) Railcars shall be chocked or otherwise prevented from moving:

(1) While dockboards or carplates are in position; or

(2) While employees are working within, on or under the railcars or near the tracks at the ends of the cars.

(e) When employees are working in, on, or under a railcar, positive means shall be taken to protect them from exposure to impact from moving railcars.

(f) Before cars are moved, unsecured and overhanging stakes, wire straps, banding and similar objects shall be removed or placed so as not to create hazards.

(g) The employer shall institute all necessary controls during railcar movement to safeguard personnel. If winches or capstans are employed for movement, employees shall stand clear of the hauling rope and shall not stand between the rope and the cars.

(h) Before being opened fully, doors shall be opened slightly to ensure that the load has not shifted during transit. Special precautions shall be taken if the doors being opened are visibly damaged.

(i) If power industrial trucks are used to open freight car doors, the trucks or the railcar doors shall be equipped with door opening attachments. Employees shall stand clear of the railcar doors while they are being opened and closed.

(j) Only railcar door openers or power trucks equipped with door opening attachments shall be used to open jammed doors.

(k) Employees shall not remain in or on gondolas or flat cars when drafts that create overhead, caught-in, caught-between or stuck by hazards are being landed in or on the railcar; and gates, if raised, shall be secured.

(l) Operators of railcar dumps shall have an unrestricted view of dumping operations and shall have emergency means of stopping movement.

(m) Recessed railroad switches shall be enclosed to provide a level surface.

(n) Warning signs shall be posted where doorways open onto tracks, at blind corners and at similar places where vision may be restricted.

(o) Warning signs shall be posted if insufficient clearance for personnel exists between railcars and structures.

§ 1917.18 Log handling.

(a) The employer shall ensure that structures (bunks) used to contain logs have rounded corners and rounded structural parts to avoid sling damage.

(b) Two or more binders or equivalently safe means of containment shall remain on logging trucks and railcars to secure logs during movement of the truck or car within the terminal. During unloading, logs shall be prevented from moving while binders are being removed.

(c) Logs shall be hoisted by two slings or by other gear designed for safe hoisting.

(d) Logs placed adjacent to vehicle curbs on the dock shall not be over one tier high unless placed in bunks or so stacked as not to roll or otherwise create a hazard to employees.

(e) Before logs are slung up from the dock, they shall be stably supported to prevent spreading and to allow passage of slings beneath the load. When bunks or similar retaining devices are used, no log shall be higher than the stanchions or retaining members of the device.

§ 1917.19 Movement of barges and railcars.

Barges and railcars shall not be moved by cargo runners (running rigging) from vessel cargo booms, cranes or other equipment not suitable for the purpose.

§ 1917.20 Interference with communications.

Cargo handling operations shall not be carried on when noise-producing maintenance, construction or repaired work interferes with communication of warnings or instructions.

§ 1917.21 Open fires.

Open fires and fires in drums or similar containers are prohibited.

§ 1917.22 Hazardous cargo.[2] (See § 1917.2(p)).

(a) Before cargo handling operations begin, the employer shall ascertain

[2]The Department of Transportation and the United States Coast Guard apply re-

Continued

whether any hazardous cargo is to be handled and shall determine the nature of the hazard. The employer shall inform employees of the nature of any hazard and any special precautions to be taken to prevent employee exposure, and shall instruct employees to notify him of any leaks or spills.

(b) All hazardous cargo shall be slung and secured so that neither the draft nor individual packages can fall as a result of tipping the draft or slacking of the supporting gear.

(c) If hazardous cargo is spilled or if its packaging leaks, employees shall be removed from the affected area until the employer has ascertained the specific hazards, provided any equipment, clothing and ventilation and fire protection equipment necessary to eliminate or protect against the hazard, and has instructed cleanup employees in a safe method of cleaning up and disposing of a spill and handling and disposing of leaking containers. Actual cleanup or disposal work shall be conducted under the supervision of a designated person.

§ 1917.23 Hazardous atmospheres and substances. (See § 1917.2(p)).

(a) *Purpose and scope.* This section covers areas in which the employer is aware that a hazardous atmosphere or substance may exist, except where one or more of the following sections apply: Section 1917.22 *Hazardous cargo;* § 1917.24 *Carbon monoxide;* § 1917.25 *Fumigants, pesticides, insecticides and hazardous preservatives;* § 1917.73 *Menhaden terminals;* § 1917.152 *Welding, cutting, and heating (hot work);* and § 1917.153 *Spray painting.*

(b) *Determination of hazard.* (1) When the employer is aware that a room, building, vehicle, railcar or other space contains or has contained a hazardous atmosphere, a designated and appropriately equipped persons shall test the atmosphere before employee entry to determine whether a hazardous atmosphere exists.

(2) Records of results of any tests required by this section shall be maintained for at least thirty (30) days.

(c) *Testing during ventilation.* When mechanical ventilation is used to maintain a safe atmosphere, tests shall be made by a designated person to ensure that the atmosphere is not hazardous.

(d) *Entry into hazardous atmospheres.* Only designated person shall enter hazardous atmospheres, in which case the following provisions shall apply:

(1) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of Subpart E of this part;

(2) Persons entering a space containing a hazardous atmosphere shall be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such space;

(3) Except for emergency or rescue operations, employees shall not enter into any atmosphere which has been identified as flammable or oxygen deficient (less than 19.5% oxygen). Persons who may be required to enter flammable or oxygen deficient atmospheres in emergency operations shall be instructed in the dangers attendant to those atmospheres and instructed in the use of self-contained breathing apparatus, which shall be utilized.

(4) To prevent inadvertent employee entry into spaces that have been identified as having hazardous, flammable or oxygen deficient atmospheres, appropriate warning signs or equivalent means shall be posted at all means of access to those spaces.

(e) When the packaging of asbestos cargo leaks, spillage shall be cleaned up by designated employees protected from the harmful effects of asbestos as required by § 1910.1001 of this chapter.

(Approved by the Office of Management and Budget under control number 1218-0003)

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quirements related to handling, storing and transportation of hazardous cargo (see 33 CFR Part 126, 46 CFR, 49 CFR).

R 30909, July 5, 1983, as amended at 49 3551, July 13, 1984]

.24 Carbon monoxide.

Exposure limits. The carbon oxide content of the atmosphere room, building, vehicle, railcar or enclosed space shall be maind at not more than 50 parts per on (0.005%) as an 8-hour timeted average and employees shall moved from the enclosed space if carbon monoxide concentration ds 100 parts per million (0.01%).

Testing. Tests to determine n monoxide concentration shall ade when necessary to ensure employee exposure does not d the limits specified in para- (a) of this section.

Instrumentation. Tests for n monoxide concentration shall ade by designated persons using letector tube units certified by H under 30 CFR Part 11 or other uring instruments whose accuras great or greater.

Records. A record of the date, location and results of carbon xide tests shall be available for st thirty (30) days.

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30909, July 5, 1983, as amended at 49 551, July 13, 1984]

25 Fumigants, pesticides, insecticles and hazardous preservatives. (See 917.2(p)).

When the employer is aware that in a space is or has been stowed, ed, or treated with a fumigant, ide, insecticide, or hazardous rvative, a determination shall be as to whether a hazardous atnere is present in the space, and employees protected as required ragraph (e) of this section shall the space if it is hazardous.

Tests to determine the atmos- concentration of chemicals o treat cargo shall be:

Appropriate for the hazard in-;

Conducted by designated per- and

Performed at the intervals neces- o ensure that employee exposure does not exceed the permissible exposure limit for the chemical involved.

(c) Results of any tests shall be available for at least thirty (30) days.

(d) Chemicals shall only be applied to cargoes by designated persons.

(e) Only designated persons shall enter hazardous atmospheres, in which case the following provisions apply.

(1) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of Subpart E of this part; and

(2) Persons entering a space containing a hazardous atmosphere shall be instructed in the nature of the hazard, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such a space.

(f) Signs shall be clearly posted where fumigants, pesticides or hazardous preservatives have created a hazardous atmosphere. These signs shall note the danger, identify specific chemical hazards, and give appropriate information and precautions, including instructions for the emergency treatment of employees affected by any chemical in use.

(Approved by the Office of Management and Budget under control number 1218-0003)

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984]

§1917.26 First aid and lifesaving facilities.

(a) Employers shall instruct employees to report every injury, regardless of severity, to the employer.

(b) A first aid kit shall be available at the terminal, and at least one person holding a valid first aid certificate shall be at the terminal when work is in progress.

(c) First aid kits shall be weatherproof and contain individual sealed packages for each item that must be kept sterile. Each kit shall include at least the following items:

Gauze roller bandages, 1 inch and 2 inch (25.4 mm and 50.8 mm); Gauze compress bandages, 4 inch (101.6 mm); Adhesive ban-

dages, 1 inch (25.4 mm); Triangular bandage, 40 inch (101.6 cm); Ammonia inhalants and ampules; Antiseptic applicators or swabs; Eye dressing; Wire or thin board splints; Forceps and tourniquet; and First aid dressing.

(d) Stretchers permanently equipped with bridles for hoisting shall be readily accessible. A blanket or other suitable covering shall be available.

(e) Telephone or equivalent means of communication shall be readily available.

(f) A U.S. Coast Guard approved 30-inch (76.2 cm) life ring, with at least 90 feet (27.42 m) of line attached, shall be available at readily accessible points at each waterside work area where the employees' work exposes them to the hazard of drowning. Employees working on any bridge or structure leading to a detached vessel berthing installation shall wear U.S. Coast Guard approved personal flotation devices except where protected by railings, nets, or safety belts and lifelines. A readily available portable or permanent ladder giving access to the water shall also be provided within 200 feet (61 m) of such work areas.

§ 1917.27 Personnel.

(a) *Qualifications of machinery operators.* (1) Only those employees determined by the employer to be competent by reason of training or experience, and who understand the signs, notices and operating instructions and are familiar with the signal code in use shall be permitted to operate a crane, winch or other power operated cargo handling apparatus, or any power operated vehicle, or give signals to the operator of any hoisting apparatus. *Exception:* Employees being trained and supervised by a designated person may operate such machinery and give signals to operators during training.

(2) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate him shall be permitted to operate a crane, winch or other power-operated cargo handling apparatus or a power-operated vehicle.

(b) *Supervisory accident prevention proficiency.* (1) After October 3, 1985 immediate supervisors of cargo-handling operations of more than five (5) persons shall satisfactorily complete a course in accident prevention. Employees newly assigned to supervisory duties after that date shall be required to meet the provisions of this paragraph within ninety (90) days of such assignment.

(2) The course shall consist of instruction suited to the particular operations involved.[3]

§ 1917.28 Hazard communication.

(a) *Purpose.* (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs which are to include container labeling and other forms of warning, material safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of evaluating the potential hazards of chemicals and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legal requirements of a state, or political subdivision of a state, pertaining to the subject. Evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; prepara-

[3] The following are recommended topics: (i) Safety responsibility and authority; (ii) elements of accident prevention; (iii) attitudes, leadership and motivation; (iv) hazards of longshoring, including peculiar local circumstances; (v) hazard identification and elimination; (vi) applicable regulations; and (vii) accident investigations.

tion and distribution of material safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce, through any court or agency, any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) *Scope and application.* (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers.

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees; and,

(iii) Employers shall ensure that laboratory employees are apprised of the hazards of the chemicals in their workplaces in accordance with paragraph (h) of this section.

(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(1)(iii)), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(5) This section does not require labeling of the following chemicals:

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(ii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) and regulations issued under that Act, when they are subject to the labeling requirements under that Act by the Food and Drug Administration;

(iii) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regula-

tions issued under that Act by the Bureau of Alcohol Tobacco, and Firearms; and,

(iv) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission.

(6) This section does not apply to:

(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Tobacco or tobacco products;

(iii) Wood or wood products;

(iv) Articles;

(v) Food, drugs, cosmetics, or alcoholic beverages in a retail establishment which are packaged for sale to consumers;

(vi) Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace;

(vii) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can demonstrate it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers; and,

(viii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*), when it is in solid, final form for direct administration to the patient (i.e. tablets or pills).

(c) *Definitions.* "Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Chemical" means any element, chemical compound or mixture of elements and/or compounds.

"Chemical manufacturer" means an employer with a workplace where chemical(s) are produced for use or distribution.

"Chemical name" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

"Combustible liquid" means any liquid having a flashpoint at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

"Common name" means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

"Compressed gas" means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F (21.1 °C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D–323–72.

"Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Distributor" means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

"Employee" means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

"Employer" means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

"Explosive" means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

"Exposure" or "exposed" means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.

"Flammable" means a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture;

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in § 190.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

"Flashpoint" means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24–1979 (ASTM D 56–79)) for liquids with a viscosity of less than 45 Saybolt University Seconds (SUS) at 100 °F (37.8 °C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7–1979 (ASTM D 93–79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 °F (37.8 °C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTMD 3278–78))

Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

"Foreseeable emergency" means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

"Hazardous chemical" means any chemical which is a physical hazard or a health hazard.

"Hazard warning" means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

"Health hazard" means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

"Identity" means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

"Immediate use" means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

"Importer" means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

"Label" means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

"Material safety data sheet (MSDS)" means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

"Mixture" means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

"Organic peroxide" means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

"Oxidizer" means a chemical other than a blasting agent or explosive as defined in § 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

"Physical hazard" means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

"Produce" means to manufacture, process, formulate, or repackage.

"Pyrophoric" means a chemical that will ignite spontaneously in air at a temperature of 130 °F (54.4 °C) or below.

"Responsible party" means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

"Specific chemical identity" means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D sets out the criteria to be used in evaluating trade secrets.

"Unstable (reactive)" means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

"Use" means to package, handle, react, or transfer.

"Water-reactive" means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

"Work area" means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

"Workplace" means an establishment, job site, or project, at one geographical location containing one or more work areas.

(d) *Hazard determination.* (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

(ii) *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment,* American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition).

The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);

(ii) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or

(iii) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

NOTE: The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the

same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(e) *Written hazard communication program.* (1) Employers shall develop, implement, and maintain at the workplace, a written hazard communication program for their workplaces which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(2) *Multi-employer workplaces.* Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(i) The methods the employer will use to provide the other employer(s) with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous chemical the other employer(s)' employees may be exposed to while working;

(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20(e).

(f) *Labels and other forms of warning.* (1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is la-

beled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s);

(ii) Appropriate hazard warnings; and

(iii) Name and address of the chemical manufacturer, importer, or other responsible party.

(2) For solid metal (such as a steel beam or a metal casting) that is not exempted as an article due to its downstream use, the required label may be transmitted to the customer at the time of the intial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes. The label may be transmitted with the initial shipment itself, or with the material safety data sheet that is to be provided prior to or at the time of the first shipment. This exception to requiring labels on every container of hazardous chemicals is only for the solid metal itself and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the metal and to which employees handling the metal may be exposed (for example, cutting fluids or lubricants).

(3) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 *et seq.*) and regulations issued under that Act by the Department of Transportation.

(4) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.

(5) Except as provided in paragraphs (f)(6) and (f)(7) of this section the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and

(ii) Appropriate hazard warnings.

(6) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(5) of this section to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift.

(7) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

(8) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(9) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(10) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.

(g) *Material safety data sheets.* (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English and shall contain at least the following information:

(i) The identity used on the label, and, except as provided for in paragraph (i) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole:

(*1*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d)(4) of this section shall be listed if the concentrations are 0.1% or greater; and,

(*2*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1% (0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees; and,

(*3*) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;

(ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(v) The primary route(s) of entry;

(vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available;

(vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) *Annual Report on Carcinogens* (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) *Monographs* (latest editions), or by OSHA;

(viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;

(ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;

(x) Emergency and first aid procedures;

(xi) The date of preparation of the material safety data sheet or the last change to it; and,

(xii) The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accu-

rately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their intitial shipment, and with the first shipment after a material safety data sheet is updated. The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the employer prior to or at the time of the shipment. If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the employer shall obtain one from the chemical manufacturer, importer, or distributor as soon as possible.

(7) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers. Retail distributors which sell hazardous chemicals to commercial customers shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available. Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors which have informed them that the retail distributor does not sell the product to commercial customers or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain copies of the required material safety data sheets for each hazardous chemical in the workplace, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).

(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at a central location at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in in their work areas(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20 (e). The Director shall also be given access to material safety data sheets in the same manner.

(h) *Employee information and training.* Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

(1) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and,

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(2) *Training.* Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring con-

ducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

(i) *Trade secrets.* (1) The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

(i) The claim that the information withheld is a trade secret can be supported;

(ii) Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

(iii) The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,

(iv) The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need of a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

(i) The request is in writing;

(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(A) To assess the hazards of the chemicals to which employees will be exposed;

(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(D) To provide medical treatment to exposed employees;

(E) To select or assess appropriate personal protective equipment for exposed employees;

(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

(A) The properties and effects of the chemical;

(B) Measures for controlling workers' exposure to the chemical;

(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

(4) The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

(i) May restrict the use of the information to the health purposes indicated in the written statement of need;

(ii) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,

(iii) May not include requirements for the posting of a penalty bond.

(5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

(6) If the health professional, employee, or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional, employee, or designated representative prior to, or at the same time as, such disclosure.

(7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must:

(i) Be provided to the health professional, employee, or designated representative, within thirty days of the request;

(ii) Be in writing;

(iii) Include evidence to support the claim that the specific chemical identity is a trade secret;

(iv) State the specific reasons why the request is being denied; and,

(v) Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.

(8) The health professional, employee, or designated representative whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.

(9) When a health professional, employee, or designated representative refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if:

(i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret;

(ii) The health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and,

(iii) The health professional, employee, or designated representative has demonstrated adequate means to protect the confidentiality.

(10)(i) If OSHA determines that the specific chemical identity requested under paragraph (i)(3) of this section is not a *bona fide* trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.

(ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the

potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.

(11) If a citation for a failure to release specific chemical identity information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation *in camera* or issue appropriate orders to protect the confidentiality or such matters.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

(j) *Effective dates.* (1) Chemical manufacturers, importers, and distributors shall ensure that material safety data sheets are provided with the next shipment of hazardous chemicals to employers after September 23, 1987.

(2) Employers in the non-manufacturing sector shall be in compliance with all provisions of this section by May 23, 1988. (Note: Employers in the manufacturing sector (SIC Codes 20 through 39) are already required to be in compliance with this section.)

(Approved by the Office of Management and Budget under control number 1218-0072)

APPENDIX A TO § 1917.28 HEALTH HAZARD DEFINITIONS (*Mandatory*)

Although safety hazards related to the physical characteristics of a chemical can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body—such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees--such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects or signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causative factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most chemicals have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms "acute" and "chronic" are used to delineate between effects on the basis of severity or duration. "Acute" effects usually occur rapidly as a result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standards Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1-1982)—irritation, corrosivity, sensitization and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects which may occur as a result of occupational exposure, such as, for example, narcosis.

imilarly, the term chronic effect is often ed to cover only carcinogenicity, terato- nicity, and mutagenicity. These effects obviously a concern in the workplace, again, do not adequately cover the area chronic effects, excluding, for example, od dyscrasias (such as anemia), chronic nchitis and liver atrophy.

The goal of defining precisely, in measura- terms, every possible health effect that y occur in the workplace as a result of emical exposures cannot realistically be omplished. This does not negate the ed for employees to be informed of such ects and protected from them. Appendix which is also mandatory, outlines the nciples and procedures of hazardous as- sment.

For purposes of this section, any chemi- s which meet any of the following defini- ns, as determined by the criteria set forth Appendix B are health hazards:

. *Carcinogen:* A chemical is considered to a carcinogen if:

a) It has been evaluated by the Interna- nal Agency for Research on Cancer RC), and found to be a carcinogen or po- tial carcinogen; or

b) It is listed as a carcinogen or potential cinogen in the *Annual Report on Car- ogens* published by the National Toxicol- Program (NTP) (latest edition); or,

c) It is regulated by OSHA as a carcino- .

. *Corrosive:* A chemical that causes visi- destruction of, or irreversible alterations living tissue by chemical action at the of contact. For example, a chemical is sidered to be corrosive if, when tested on intact skin of albino rabbits by the thod described by the U.S. Department Transportation in Appendix A to 49 CFR t 173, it destroys or changes irreversibly structure of the tissue at the site of con- t following an exposure period of four rs. This term shall not refer to action on nimate surfaces.

. *Highly toxic:* A chemical falling within of the following categories:

a) A chemical that has a median lethal e (LD_{50}) of 50 milligrams or less per kilo- m of body weight when administered lly to albino rats weighing between 200 300 grams each.

b) A chemical that has a median lethal n (LD_{50}) of 200 milligrams or less per gram of body weight when administered continuous contact for 24 hours (or less leath occurs within 24 hours) with the e skin of albino rabbits weighing be- en two and three kilograms each.

c) A chemical that has a median lethal ncentration (LC_{50}) in air of 200 parts per llion by volume or less of gas or vapor, or milligrams per liter or less of mist, fume, dust, when administered by continuous alation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

4. *Irritant:* A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

5. *Sensitizer.* A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

6. *Toxic.* A chemical falling within any of the following categories:

(a) A chemical that has a median lethal dose (LD_{50}) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose (LD_{50}) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration (LC_{50}) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapo., or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

7. *Target organ effects.* The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

a. Hepatotoxins: Chemicals which produce liver damage
   Signs & Symptoms: Jaundice; liver enlargement
   Chemicals: Carbon tetrachloride; nitrosamines
b. Nephrotoxins: Chemicals which produce kidney damage
   Signs & Symptoms: Edema; proteinuria

Chemicals: Halogenated hydrocarbons; uranium

e. Neurotoxins: Chemicals which produce their primary toxic effects on the nervous system
Signs & Symptoms: Narcosis; behavioral changes; decrease in motor functions
Chemicals: Mercury; carbon disulfide

d. Agents which act on the blood or hematopoietic system: Decrease hemoglobin function; deprive the body tissues of oxygen
Signs & Symptoms: Cyanosis; loss of consciousness
Chemicals: Carbon monoxide; cyanides

e. Agents which damage the lung: Chemicals which irritate or damage the pulmonary tissue
Signs & Symptoms: Cough; tightness in chest; shortness of breath
Chemicals: Silica; asbestos

f. Reproductive toxins: Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
Signs & Symptoms: Birth defects; sterility
Chemicals: Lead; DBCP

g. Cutaneous hazards: Chemicals which affect the dermal layer of the body
Signs & Symptoms: Defatting of the skin; rashes; irritation
Chemicals: Ketones; chlorinated compounds

h. Eye hazards: Chemicals which affect the eye or visual capacity
Signs & Symptoms: Conjunctivitis; corneal damage
Chemicals: Organic solvents; acids

Appendix B to § 1917.28 Hazard Determination (*Mandatory*)

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process which relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance-orientation of the hazard determination does not diminish the duty of the chemical manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. *Carcinogenicity*: As described in paragraph (d)(4) and Appendix A of this section, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section.

2. *Human data*: Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.

3. *Animal data*: Human evidence of health effects in exposed populations is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).

4. *Adequacy and reporting of data*. The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet. The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazard.

Appendix C to § 1917.28 Information Sources (*Advisory*)

The following is a list of available data sources which the chemical manufacturer, importer, distributor, or employer may wish to consult to evaluate the hazards of chemicals they produce or import:

—Any information in their own company files, such as toxicity testing results or business experience of company employees.

—Any information obtained from the supplier of the chemical, such as material safety data sheets or product safety bulletins.

—Any pertinent information obtained from the following source list (latest editions should be used):

Condensed Chemical Dictionary
Van Nostrand Reinhold Co., 135 West 50th Street, New York, NY 10020.

The Merck Index: An Encyclopedia of Chemicals and Drugs
Merck and Company, Inc., 126 E. Lincoln Ave., Rahway, NJ 07065.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man

Geneva: World Health Organization, International Agency for Research on Cancer, 1972-Present. (Multivolume work). Summaries are available in supplement volumes. 49 Sheridan Street, Albany, NY 12210.

dustrial Hygiene and Toxicology, by F.A. Patty
John Wiley & Sons, Inc., New York, NY (Multivolume work).

linical Toxicology of Commercial Products Gleason, Gosselin, and Hodge

asarett and Doull's Toxicology: The Basic Science of Poisons
Doull, Klaassen, and Amdur, Macmillan Publishing Co., Inc., New York, NY.

dustrial Toxicology, by Alice Hamilton and Harriet L. Hardy
Publishing Sciences Group, Inc., Acton, MA.

xicology of the Eye, by W. Morton Grant
Charles C. Thomas, 301-327 East Lawrence Avenue, Springfield, IL.

ecognition of Health Hazards in Industry
William A. Burgess, John Wiley and Sons, 605 Third Avenue, New York, NY 10158.

emical Hazards of the Workplace
Nick H. Proctor and James P. Hughes, J.P. Lipincott Company, 6 Winchester Terrace, New York, NY 10022.

andbook of Chemistry and Physics
Chemical Rubber Company, 18901 Cranwood Parkway, Cleveland, OH 44128.

reshold Limit Values for Chemical Substances and Physical Agents in the Work Environment and Biological Exposure Indices with Intended Changes
American Conference of Governmental Industrial Hygienists (ACGIH). 6500 Glenway Avenue, Bldg. D-5, Cincinnati, OH 45211.

Information on the physical hazards of chemicals may be found in publications of the National Fire Protection Association, Boston, MA.

NOTE: The following documents may be rchased from the Superintendent of Documents, U.S. Government Printing Office, ashington, DC 20402.

ccupational Health Guidelines
NIOSH/OSHA (NIOSH Pub. No. 81-123)

IOSH Pocket Guide to Chemical Hazards
NIOSH Pub. No. 85-114

gistry of Toxic Effects of Chemical Substances
NIOSH Pub. No. 80-102

iscellaneous Documents published by the National Institute for Occupational Safety and Health:
Criteria documents.
Special Hazard Reviews.
Occupational Hazard Assessments.
Current Intelligence Bulletins.

SHA's General Industry Standards (29 CFR Part 1910)

NTP Annual Report on Carcinogens and *Summary of the Annual Report on Carcinogens.*
National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (703) 487-4650.

BIBLIOGRAPHIC DATA BASES

Service provider	File name
Bibliographic Retrieval Services (BRS), 1200 Route 7, Latham, NY 12110.	Biosis Previews CA Search Medlars NTIS Hazardline American Chemical Society Journal Excerpta Medica IRCS Medical Science Journal Pre-Med Intl Pharmaceutical Abstracts Paper Chem
Lockheed—DIALOG Information Service, Inc., 3460 Hillview Avenue, Palo Alto, CA 94304.	Biosis Prev. Files CA Search Files CAB Abstracts Chemical Exposure Chemname Chemsis Files Chemzero Embase Files Environmental Bibliographies Enviroline Federal Research in Progress IRL Life Science Collection NTIS Occupational Safety and Health (NIOSH) Paper Chem
SDC—Orbit, SDC Information Service, 2500 Colorado Avenue, Santa Monica, CA 90406.	CAS Files Chemdex, 2, 3 NTIS
National Library of Medicine, Department of Health and Human Services, Public Health Service, National Institutes of Health, Bethesda, MD 20209.	Hazardous Substances Data Bank (NSDB) Medline files Toxline Files Cancerlit RTECS Chemline
Pergamon International Information Corp., 1340 Old Chain Bridge Rd., McLean, VA 22101.	Laboratory Hazard Bulletin
Questel, Inc., 1625 Eye Street, NW., Suite 818, Washington, DC 20006.	CIS/ILO Cancernet
Chemical Information System ICI (ICIS), Bureau of National Affairs, 1133 15th Street, NW., Suite 300, Washington, DC 20005.	Structure and Nomenclature Search System (SANSS) Acute Toxicity (RTECS) Clinical Toxicology of Commercial Products Oil and Hazardous Materials Technical Assistance Data System CCRIS CESARS MSDS
Occupational Health Services, 400 Plaza Drive, Secaucus, NJ 07094.	Hazardline

APPENDIX D TO § 1917.28 DEFINITION OF "TRADE SECRET" (*Mandatory*)

The following is a reprint of the *Restatement of Torts* section 757, comment *b* (1939):

b. Definition of trade secret. A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers. It differs from other secret information in a business (see § 759 of the *Restatement of Torts* which is not included in this Appendix) in that it is not simply information as to single or ephemeral events in the conduct of the business, as, for example, the amount or other terms of a secret bid for a contract or the salary of certain employees, or the security investments made or contemplated, or the date fixed for the announcement of a new policy or for bringing out a new model or the like. A trade secret is a process or device for continuous use in the operations of the business. Generally it relates to the production of goods, as, for example, a machine or formula for the production of an article. It may, however, relate to the sale of goods or to other operations in the business, such as a code for determining discounts, rebates or other concessions in a price list or catalogue, or a list of specialized customers, or a method of bookkeeping or other office management.

Secrecy. The subject matter of a trade secret must be secret. Matters of public knowledge or of general knowledge in an industry cannot be appropriated by one as his secret. Matters which are completely disclosed by the goods which one markets cannot be his secret. Substantially, a trade secret is known only in the particular business in which it is used. It is not requisite that only the proprietor of the business know it. He may, without losing his protection, communicate it to employees involved in its use. He may likewise communicate it to others pledged to secrecy. Others may also know of it independently, as, for example, when they have discovered the process or formula by independent invention and are keeping it secret. Nevertheless, a substantial element of secrecy must exist, so that, except by the use of improper means, there would be difficulty in acquiring the information. An exact definition of a trade secret is not possible. Some factors to be considered in determining whether given information is one's trade secret are: (1) The extent to which the information is known outside of his business; (2) the extent to which it is known by employees and others involved in his business; (3) the extent [illegible] measures taken by him to guard the secrecy of the information; (4) the value of the information to him and his competitors; (5) the amount of effort or money expended by him in developing the information; (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

Novelty and prior art. A trade secret may be a device or process which is patentable, but it need not be that. It may be a device or process which is clearly anticipated in the prior art or one which is merely a mechanical improvement that a good mechanic can make. Novelty and invention are not requisite for a trade secret as they are for patentability. These requirements are essential to patentability because a patent protects against unlicensed use of the patented device or process even by one who discovers it properly through independent research. The patent monopoly is a reward to the inventor. But such is not the case with a trade secret. Its protection is not based on a policy of rewarding or otherwise encouraging the development of secret processes or devices. The protection is merely against breach of faith and reprehensible means of learning another's secret. For this limited protection it is not appropriate to require also the kind of novelty and invention which is a requisite of patentability. The nature of the secret is, however, an important factor in determining the kind of relief that is appropriate against one who is subject to liability under the rule stated in this section. Thus, if the secret consists of a device or process which is a novel invention, one who acquires the secret wrongfully is ordinarily enjoined from further use of it and is required to account for the profits derived from his past use. If, on the other hand, the secret consists of mechanical improvements that a good mechanic can make without resort to the secret, the wrongdoer's liability may be limited to damages, and an injunction against future use of the improvement made with the aid of the secret may be inappropriate.

[52 FR 31877, Aug. 24, 1987, as amended at 53 FR 15035, Apr. 27, 1988; 54 FR 6888, Feb. 15, 1989; 54 FR 24334, June 7, 1989]

Subpart C—Cargo Handling Gear and Equipment

§ 1917.41 House falls.

(a) Span beams shall be secured to prevent accidental dislodgement.

(b) A safe means of access shall be provided for employees working with house fall blocks.

(c) Designated employees shall inspect chains, links, shackles, swivels, blocks and other loose gear used in house fall operations before each day's use. Defective gear shall not be used.

§ 1917.42 Miscellaneous auxiliary gear.

(a) *Routine inspection.* (1) At the completion of each use, loose gear such as slings, chains, bridles, blocks and hooks shall be so placed as to avoid damage to the gear. Loose gear shall be inspected and any defects corrected before reuse.

(2) All loose gear shall be inspected by the employer or his authorized representative before each use and, when necessary, at intervals during its use, to ensure that it is safe. Any gear which is found upon such inspection to be visibly unsafe shall not be used until it is made safe.

(3) Defective gear shall not be used. Distorted hooks, shackles or similar gear shall be discarded.

(b) *Wire rope and wire rope slings.* (1) The employer shall ascertain and adhere to the manufacturer's recommended ratings for wire rope and wire rope slings and shall have such ratings available for inspection. When the manufacturer is unable to supply such ratings, the employer shall use the tables for wire rope and wire rope slings found in American National Safety Standard for Slings, ANSI B30.9-1971. A design safety factor of at least five shall be maintained for the common sizes of running wire used as falls, in purchases or in such uses as light load slings. Wire rope with a safety factor of less than five may be used only:

(i) In specialized equipment, such as but not limited to cranes, designed to be used with lesser wire rope safety factors;

(ii) In accordance with design factors in standing rigging applications; or

(iii) For heavy lifts or other purposes for which a safety factor of five is impracticable and for which the employer can demonstrate that equivalent safety is ensured.

(2) Wire rope or wire rope slings having any of the following conditions shall not be used:

(i) Ten randomly distributed broken wires in one rope lay or three or more broken wires in one strand in one rope lay;

(ii) Kinking, crushing, bird caging or other damage resulting in distortion of the wire rope structure;

(iii) Evidence of heat damage;

(iv) Excessive wear or corrosion, deformation or other defect in the wire or attachments, including cracks in attachments;

(v) Any indication of strand or wire slippage in end attachments; or

(vi) More than one broken wire in the close vicinity of a socket or swaged fitting.

(3) Protruding ends of strands in splices on slings and bridles shall be covered or blunted. Coverings shall be removable so that splices can be examined. Means used to cover or blunt ends shall not damage the wire.

(4) Where wire rope clips are used to form eyes, the employer shall adhere to the manufacturer's recommendations, which shall be available at the terminal. If "U" bolt clips are used and the manufacturer's recommendations are not available, Table C-1 shall be used to determine the number and spacing of clips. "U" bolts shall be applied with the "U" section in contact with the dead end of the rope.

TABLE C-1—NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter	Minimum number of clips		Minimum spacing
inches/(cm)	Drop forged	Other material	inches/(cm)
½ or less(1.3)	3	4	3(7.6)
⅝(1.6)	3	4	3¾(9.5)
¾(1.9)	4	5	4½(11.4)
⅞(2.2)	4	5	5¼(13.3)
1(2.5)	5	7	6(15.2)
1⅛(2.7)	6	7	6¾(17.1)
1¼(3.2)	6	8	7½(18.1)
1⅜(3.5)	7	8	8¼(21.0)
1½(3.8)	7	9	9(22.9)

(5) Wire rope shall not be secured by knots.

(6) Eyes in wire rope bridles, slings, bull wires, or in single parts used for

hoisting shall not be formed by wire rope clips or knots.

(7) Eye splices in wire ropes shall have at least three tucks with a whole strand of the rope and two tucks with one-half of the wire cut from each strand. Other forms of splices or connections which are shown to be equivalently safe may be used.

(8) Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in bulling cargo, shall consist of one continuous piece without knot or splice.

(c) *Natural fiber rope.* (1) The employer shall ascertain the manufacturer's ratings for the specific natural fiber rope used and have such ratings available at the terminal. The manufacturer's ratings shall be adhered to and a minimum design safety factor of five maintained.

(2) Eye splices shall consist of at least three full tucks. Short splices shall consist of at least six full tucks, three on each side of the center line.

(d) *Synthetic rope.* (1) The employer shall adhere to the manufacturer's ratings and use recommendations for the specific synthetic fiber rope used and shall have such ratings available at the terminal.

(2) Unless otherwise recommended by the manufacturer, when synthetic fiber ropes are substituted for manila ropes of less than three inches (7.62 cm) in circumference, the substitute shall be of equal size. Where substituted for manila rope of three inches or more in circumference, the size of the synthetic rope shall be determined from the formula:

$$C=0.6C_s^2+0.4C_m^2$$

where C = the required circumference of the synthetic rope in inches, C_s = the circumference to the nearest one-quarter inch of a synthetic rope having a breaking strength not less than that of the size manila rope that would be required by paragraph (c) of this section, and C_m = the circumference of manila rope in inches which would be required by paragraph (c) of this section. In making such substitution, it shall be ascertained that the inherent characteristics of the synthetic fiber are suitable for hoisting.

(e) *Removal of natural and synthetic rope from service.* Natural and synthetic rope having any of the following defects shall be removed from service:

(1) Abnormal wear;

(2) Powdered fiber between strands;

(3) Sufficient cut or broken fibers to affect the capability of the rope;

(4) Variations in the size or roundness of strands;

(5) Discolorations other than stains not associated with rope damage;

(6) Rotting; or

(7) Distortion or other damage to attached hardware.

(f) *Thimbles.* Properly fitting thimbles shall be used where any rope is secured permanently to a ring, shackle or attachment, where practicable.

(g) *Synthetic web slings.* (1) Slings and nets or other combinations of more than one piece of synthetic webbing assembled and used as a single unit (synthetic web slings) shall not be used to hoist loads in excess of the sling's rated capacity.

(2) Synthetic web slings shall be removed from service if they exhibit any of the following defects:

(i) Acid or caustic burns;

(ii) Melting or charring of any part of the sling surface;

(iii) Snags, punctures, tears or cuts;

(iv) Broken or worn stitches; or

(v) Distortion or damage to fittings.

(3) Defective synthetic web slings removed from service shall not be returned to service unless repaired by a sling manufacturer or similar entity. Each repaired sling shall be proof tested by the repairer to twice the slings' rated capacity prior to its return to service. The employer shall retain a certificate of the proof test and make it available for examination.

(4) Synthetic web slings provided by the employer shall only be used in accordance with the manufacturer's use recommendations, which shall be available.

(5) Fittings shall have a breaking strength at least equal to that of the sling to which they are attached and shall be free of sharp edges.

(h) *Chains and chain slings used for hoisting.* (1) The employer shall adhere to the manufacturer's recommended ratings for safe working loads

for the sizes of wrought iron and alloy steel chains and chain slings used and shall have such ratings available. When the manufacturer is unable to provide such ratings, the employer shall use the tables for chains and chain slings found in American National Safety Standard for Slings, ANSI B30.9–1971.

(2) Proof coil steel chain, also known as common or hardware chain, and other chain not recommended by the manufacturer for slinging or hoisting shall not be used for slinging or hoisting.

(3)(i) Sling chains, including end fastenings, shall be inspected for visible defects before each day's use and as often as necessary during use to ensure integrity of the sling.

(ii) Thorough inspections of chains in use shall be made quarterly to detect wear, defective welds, deformation or increase in length or stretch. The month of inspection shall be indicated on each chain by color of paint on a link or by other equally effective means.

(iii) Chains shall be removed from service when maximum allowable wear, as indicated in Table C-2, is reached at any point of link.

(iv) Chain slings shall be removed from service when stretch has increased the length of a measured section by more than five percent; when a link is bent, twisted or otherwise damaged; or when a link has a raised scarf or defective weld.

(v) Only designated persons shall inspect chains used for slinging and hoisting.

TABLE C-2—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size		Maximum allowable wear	
Inches	(cm)	Inches	(cm)
¼(5/16)	(0.6)	5/64	(0.1)
3/8	(1.0)	7/64	(0.2)
½	(1.3)	9/64	(0.3)
5/8	(1.6)	11/64	(0.4)
¾	(1.9)	13/32	(0.4)
⅞	(2.2)	1 1/64	(0.4)
1	(2.5)	9/32	(0.5)
1⅛	(2.9)	11/32	(0.6)
1¼	(3.2)	¼	(0.6)
1⅜	(3.5)	9/32	(0.7)
1½	(3.8)	5/16	(0.9)
1¾	(4.4)	1 1/32	(0.9)

(4) Chains shall only be repaired under qualified supervision. Links or portions of chain defective under any of the criteria of paragraph (h)(3)(v) of this section shall be replaced with properly dimensioned links or connections of material similar to that of the original chain. Before repaired chains are returned to service, they shall be tested to the proof test load recommended by the manufacturer for the original chain. Tests shall be performed by the manufacturer or shall be certified by an agency accredited for the purpose under Part 1919 of this chapter. Test certificates shall be available at the terminal.

(5) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months. Heat treatment certificates shall be available at the terminal. Alloy chains shall not be annealed.

(6) Kinked or knotted chains shall not be used for lifting. Chains shall not be shortened by bolting, wiring or knotting. Makeshift links or fasteners such as wire, bolts or rods shall not be used.

(7) Hooks, rings, links and attachments affixed to sling chains shall have rated capacities at least equal to that of the chains to which they are attached.

(8) Chain slings shall bear identification of size, grade and rated capacity.

(i) *Shackles.* (1) If available, the manufacturer's recommended safe working loads for shackles shall not be exceeded. In the absence of manufacturer's recommendations, Table C-3 shall apply.

(2) Screw pin shackles used aloft in house fall or other gear, except in cargo hook assemblies, shall have their pins moused or otherwise effectively secured.

TABLE C–3—SAFE WORKING LOADS FOR SHACKLES

Material size		Pin diameter		Safe working load in 2,000 lb tons
Inches	(cm)	Inches	(cm)	
½	(1.3)	⅝	(1.6)	1.4
⅝	(1.6)	¾	(1.9)	2.2
¾	(1.9)	⅞	(2.2)	3.2
⅞	(2.2)	1	(2.5)	4.3
1	(2.5)	1⅛	(2.9)	5.8
1⅛	(2.9)	1¼	(3.2)	6.7
1¼	(3.2)	1⅜	(3.5)	8.2
1⅜	(3.5)	1½	(3.8)	10.0
1½	(3.8)	1⅝	(4.1)	11.9
1¾	(4.4)	2	(5.0)	16.2
2	(5.0)	2¼	(5.7)	21.2

(j) *Hooks other than hand hooks.* (1) The manufacturer's recommended safe working loads for hooks shall not be exceeded. After October 3, 1983, hooks other than hand hooks shall be tested in accordance with § 1917.51(c)(6).

(2) Bent or sprung hooks shall be discarded.

(3) Teeth of case hooks shall be maintained in safe condition.

(4) Jaws of patent clamp-type plate hooks shall be maintained in condition to grip plates securely.

(5) Loads shall be applied to the throat of the hook only.

(k) *Pallets.* (1) Pallets shall be made and maintained to safely support and carry loads being handled. Fastenings of reusable pallets used for hoisting shall be bolts and nuts, drive screws (helically threaded nails), annular threaded nails or fastenings of equivalent holding strength.

(2) Damaged pallets shall be stored in designated areas and identified.

(3) Reusable wing or lip-type pallets shall be hoisted by bar bridles or other suitable gear and shall have an overhanging wing or lip of at least three inches (76.2 mm). They shall not be hoisted by wire slings alone.

(4) Loaded pallets that do not meet the requirements of this paragraph shall be hoisted only after being placed on pallets meeting such requirements or shall be handled by other means providing equivalent safety.

(5) Bridles for handling flush end or box-type pallets shall be designed to prevent disengagement from the pallet under load.

(6) Pallets shall be stacked or placed to prevent falling, collapsing or otherwise causing a hazard under standard operating conditions.

(7) Disposable pallets intended only for one use shall not be reused for hoisting.

§ 1917.43 Powered industrial trucks.

(a) *Applicability.* This section applies to every type of powered industrial truck used for material or equipment handling within a marine terminal. It does not apply to over-the-road vehicles.

(b) *General.* (1) After October 3, 1983 modifications, such as adding counterweights, that might affect the vehicle's capacity or safety shall not be performed without either the manufacturer's prior written approval or the written approval of a professional engineer experienced with the equipment who has consulted with the manufacturer, if available. Capacity, operation and maintenance instruction plates, tags or decals shall be changed to conform to the equipment as modified.

(2) Unauthorized personnel shall not ride on powered industrial trucks. A safe place to ride shall be provided when riding is authorized.

(3) When a powered industrial truck is left unattended, load-engaging means shall be fully lowered, controls neutralized and brakes set. Unless the truck is in view and within 25 feet (7.6 m) of the operator, power shall be shut off. Wheels shall be blocked or curbed if the truck is on an incline.

(4) Powered industrial trucks shall not be operated inside highway vehicles or railcars having damage which could affect operational safety.

(5) Powered industrial trucks shall be marked with their rated capacities, which shall be visible to the operator.

(6) Only stable and safely arranged loads within the rated capacity of the truck shall be handled.

(7) The employer shall direct drivers to ascend and descend grades slowly.

(8) The employer shall direct drivers to slow down and sound the horn at

crossaisles and other locations where visibility is obstructed.

(9) If the load obstructs the forward view, the employer shall direct drivers to travel with the load trailing.

(10) Steering knobs shall not be used unless the truck is equipped with power steering.

(11) When powered industrial trucks use cargo lifting devices that have a means of engagement hidden from the operator, a means shall be provided to enable the operator to determine that the cargo has been engaged.

(12) When cargo is being towed on pipe trucks or similar equipment, a safe means shall be provided to protect the driver from sliding loads.

(c) *Maintenace.* (1) Only designated persons shall perform maintenance and repair.

(2) Batteries on all powered trucks shall be disconnected during repairs to the primary electrical system unless power is necessary for testing and repair. On trucks equipped with systems capable of storing residual energy, that energy shall be safely discharged before work on the primary electrical system begins.

(3) Replacement parts whose function might affect operational safety shall be equivalent in strength and performance capability to the original parts which they replace.

(4) Braking systems or other mechanisms used for braking shall be operable and in safe condition.

(5) Powered industrial trucks shall be maintained in safe working order. Safety devices shall not be removed or made inoperative except as otherwise provided in this section. Trucks with a fuel system leak or any other safety defect shall not be operated.

(6) Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated as safe for such repairs.

(d) *Approved trucks.* (1) "Approved power-operated industrial truck" means one listed or approved for the intended use by a nationally recognized testing laboratory.

(2) Approved trucks acquired and used after February 15, 1972, shall bear a label or other identification indicating testing laboratory approval.

(3) When the atmosphere in an area is hazardous and the provisions of United States Coast Guard regulations at 33 CFR 126.15(e) do not apply, only power-operated industrial trucks approved for such locations shall be used.

(e) *Fork lift trucks.* (1) *Overhead guards.* (i) When operators are exposed to overhead falling hazards, the employer shall ensure that fork lift trucks are equipped with securely attached overhead guards. Guards shall be constructed to protect the operator from falling boxes, cartons, packages, or similar objects.

(ii) Overhead guards shall not obstruct the operator's view, and openings in the top of the guard shall not exceed six inches (15.2 cm) in one of the two directions, width or length. Larger openings are permitted if no opening allows the smallest unit of cargo being handled to fall through the guard.

(iii) Overhead guards shall be built so that failure of the vehicle's mast tilting mechanism will not displace the guard.

(iv) An overhead guard, otherwise required by this paragraph, may be removed only when it would prevent a truck from entering a work space and if the operator is not exposed to low overhead obstructions in the work space.

(v) Overhead guards shall be large enough to extend over the operator during all truck operations, including forward tilt.

(2) *Load backrest extensions.* Where necessary to protect the operator, fork lift trucks shall be fitted with a vertical load backrest extension to prevent the load from hitting the mast when the mast is positioned at maximum backward tilt. For this purpose, a "load backrest extension" means a device extending vertically from the fork carriage frame to prevent raised loads from falling backward.

(3) *Forks.* Forks, fork extensions and other attachments shall be secured so that they cannot be accidentally dislodged, and shall be used only in accordance with the manufacturer's recommendations.

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(4) *Counterweights.* Counterweights shall be so affixed that they cannot be accidentally dislodged.

(5) *Capacities and weights.* (i) Fork lift truck rated capacities, with and without removable counterweights, shall not be exceeded. Rated capacities shall be marked on the vehicle and shall be visible to the operator. The vehicle weight, with and without counterweight, shall be similarly marked.

(ii) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.

(6) *Lifting of employees.* Employees may be elevated by fork lift trucks only when a platform is secured to the lifting carriage or forks. The platform shall meet the following requirements:

(i) The platform shall have a railing complying with § 1917.112(c).

(ii) The platform shall have toeboards complying with § 1917.112(d) if tools or other objects could fall on employees below.

(iii) When the truck has controls which are elevated with the lifting carriage, means shall be provided for employees on the platform to shut off power to the vehicle.

(iv) Employees on the platform shall be protected from exposure to moving truck parts.

(v) The platform floor shall be skid resistant.

(vi) A truck operator shall be at the truck's controls when employees are elevated unless the truck's controls are elevated with the lifting carriage.

(vii) While employees are elevated, the truck may be moved only to make minor placement adjustments.

(f) *Bulk cargo-moving vehicles.* (1) Where a seated operator may come into contact with projecting overheads, crawler-type bulk-cargo-moving vehicles that are rider operated shall be equipped with operator's guards.

(2) Guards and their attachment points shall be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(g) *Straddle trucks.* (1) *Accessibility.* Straddle trucks shall have a permanent means of access to the operator's station, including any handholds necessary for safe ascent and descent.

(2) *Guarding.* (i) Main sprockets and chains to the wheels shall be guarded as follows:

(A) The upper sprocket shall be enclosed;

(B) The upper half of the lower sprocket shall be enclosed; and

(C) The drive chain shall be enclosed to a height of eight feet (2.6 m) except for that portion at the lower half of the lower sprocket.

(ii) Gears shall be enclosed and revolving parts which may be contacted by the operator shall be guarded.

(iii) When straddle trucks are used in the vicinity of employees, personnel-deflecting guards shall be provided around leading edges of front and rear wheels.

(3) *Visibility.* Operator visibility shall be provided in all directions of movement.

(h) *Trailer-spotting tractors.* (1) Trailer-spotting tractors (fifth wheels) shall be fitted with any hand grabs and footing necessary for safe access to the fifth wheel.

(2) Rear cab windows shall be of safety glass or of equivalent material.

§ 1917.44 General rules applicable to vehicles.[4]

(a) The requirements of this section apply to general vehicle use within marine terminals except in cases where the provisions of paragraphs (c) and (m) of this section are preempted by applicable regulations of the Department of Transportation.[5]

(b) Private vehicle parking in marine terminals shall be allowed only in designated areas.

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[4] The United States Coast Guard at 33 CFR 126.15(d) and (e) has additional regulations applicable to vehicles in terminals.

[5] Department of Transportation regulations in 49 CFR Part 393, Subpart C-Brakes, address the immobilization of trailer road wheels prior to disconnection of the trailer and until braking is again provided. 49 CFR 393.84 addresses the condition of flooring. These DOT rules apply when the motor carrier is engaged in interstate commerce or in the transport of certain hazardous items wholly within a municipality or the commercial zone thereof.

(c) Trailers shall not be disconnected from tractors at loading docks until the road wheels have been immobilized. The road wheels shall be immobilized from the time the brake system is disconnected until braking is again provided. Supplementary front end support shall be employed as necessary to prevent tipping when a trailer is entered by a material handling vehicle. Rear end support shall be employed if rear wheels are so far forward as to allow tipping when the trailer is entered.

(d) The employer shall direct motor vehicle operators to comply with any posted speed limits and other traffic control signs or signals, and written traffic instructions.

(e) Stop signs shall be posted at main entrances and exits of structures where visibility is impaired, and at blind intersections, unless direct traffic control or warning mirror systems or other systems of equivalent safety are provided.

(f) Vehicular routes, traffic rules, and parking areas shall be established, identified, and used.

(g) The employer shall direct vehicle drivers to warn employees in traffic lanes of the vehicle's approach.

(h) Signs indicating pedestrian traffic shall be clearly posted at vehicular check-in and check-out lines and similar locations where employees may be working.

(i) A distance of not less than 20 feet (4.5 m) shall be maintained between the first two vehicles in a check-in, check-out roadability, or vessel loading/discharging * line. This distance shall be maintained between any subsequent vehicles behind which employees are required to work.

(j) No unattended vehicle shall be left with its engine running unless secured against movement (see §1917.43(b)(3) for powered industrial trucks).

(k) When the rear of a vehicle is elevated to facilitate loading or discharging, a ramp shall be provided and secured. The vehicle shall be secured against accidental movement during loading or discharging.

(l) Only highway vehicle floors in safe condition shall be used.

(m) When flatbed trucks, platform containers or similar conveyances are loaded or discharged and the cargo consists of pipe or other products which could spread or roll to endanger employees, the cargo shall be contained to prevent movement.

(n) Vehicles used to transport employees within a terminal shall be maintained in safe working order and safety devices shall not be removed or made inoperative.

(o) *Servicing multi-piece and single piece rim wheels.* Servicing of multi-piece and single piece rim wheels is covered by § 1910.177 of this chapter.

(1) *Scope.* This paragraph applies to the servicing of vehicle wheels containing tube-type tires mounted on multi-piece rims.

(2) *Definition.* "Multi-piece rim" means a vehicle wheel rim consisting of two or more parts, one of which is a (side) locking ring designed to hold the tire on the rim by tension on interlocking components when the tire is inflated, regardless of the relative sizes of the component parts.

(3) *Employee training.* (i) The employer shall ensure that only employees trained in the procedures required in paragraph (p)(4) of this section and who have demonstrated their ability to service multi-piece rim wheels shall be assigned such duties.

(ii) The employer shall ensure that each employee demonstrates his ability to service multi-piece rim wheels, including performance of the following tasks:

(A) Tire demounting (including deflation);

(B) Inspection of wheel components;

(C) Mounting of tires;

(D) Inflation of tires, including use of a restraining device;

(E) Handling of wheels;

(F) Inflation of tires when a wheel is mounted on the vehicle; and

(G) Installation and removal of wheels.

(4) *Servicing procedures.* The employer shall ensure that the following procedures are followed:

(i) Tires shall be completely deflated before demounting by removal of the valve core;

(ii) The valve core shall be removed before the wheel is removed from the axle when:

(A) The tire has been operated underinflated at 80% or less of its recommended pressure, or

(B) There is discernible or suspected damage to the tire or wheel components;

(iii) Mating surfaces shall be free of dirt, surface rust, scale and rubber buildup before mounting;

(iv) Rubber lubricant shall be applied to bead and rim mating surfaces upon wheel assembly and inflation of the tire;

(v) Air pressure shall not exceed 3 psig (0.21 kg/cm²) when seating the locking ring or rounding out the tube when a tire is being partially inflated without a restraining device;

(vi) While the tire is pressurized, components shall not be struck or forced to correct the seating of side or lock rings;

(vii) There shall not be any contact between an employee or unit of equipment and a restraining device during tire inflation;

(viii) After inflation, tires, rims and rings shall be inspected while within the restraining device to ensure seating and locking. If adjustment is necessary the tire shall first be deflated by valve core removal; and

(ix) Before assembly, wheel components shall be inspected, and damaged rim components shall not be reused.

(5) *Charts and manuals.* (i) The employer shall provide a chart containing as a minimum the instructions and information provided in the United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA) publication "Safety Precautions for Mounting and Demounting Tube-Type Truck/Bus Tires" and "Multi-Piece Rim Wheel Matching Chart," and pertinent to the type(s) of multi-piece rim wheels being serviced. The chart shall be available in the terminal's service area.[6]

[6]NHTSA charts are available from General Services Division, National Highway Traffic Safety Administration, Attention: N48-51, 400 Seventh Street, SW., Washington, D.C. 20590. Industry charts are available upon request from the manufacturer.

(ii) A current rim manual containing the manufacturer's instructions for mounting, demounting, maintenance and safety precautions relating to the multi-piece rim wheels being serviced shall be available in the terminal's service area.

(6) *Restraining devices.* (i) Except as otherwise noted, inflation shall be done within a restraining device such as a cage, rack or other device capable of withstanding the maximum force that would be transferred to it during an explosive wheel separation occurring at 150% of maximum tire specification pressure for the wheels being serviced. The restraining device shall be capable of preventing rim components from being thrown outside the frame of the device for any wheel position within the device. When the wheel assembly is mounted on a vehicle, tires may be inflated without a restraining device only if they have more than 80% of the recommended pressure and if remote control inflation equipment is used and employees are clear of the danger area.

(ii) Restraining devices shall be kept in good repair and be capable of preventing rim components from being thrown outside the device.

(7). *Inflation hoses.* Inflation hoses shall have a manual clip-on chuck with sufficient hose to permit an employee to be clear of the danger zone. An in-line, manually operated valve with gauge or a preset pressure regulator shall be used to inflate tires.

(8) *Other equipment.* (i) Only tools recommended in the rim manual for the type of wheel being serviced shall be used to service multi-piece rim wheels.

(ii) Wheel components shall not be interchanged except as provided in the applicable chart or manual.

[48 FR 30909, July 5, 1983, as amended at 52 FR 36026, Sept. 25, 1987]

§ 1917.45 Cranes and derricks (See also § 1917.51).

(a) *Coverage.* (1) This section applies to every kind of crane and derrick and to any other type of equipment performing the functions of a crane or derrick except as noted in paragraph (a)(2) of this section.

(2) This section does not apply to small industrial truck-type cranes, container handling top-loaders and sideloaders, chain hoists, and mobile straddle-type cranes incapable of straddling two or more intermodal containers (16 feet (4.88 m) in width).

(b) *Ratings.* (1) Except for bridge cranes covered by paragraph (g) of this section, cranes and derricks having ratings that vary with boom length, radius (outreach) or other variables shall have a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings. The rating chart shall include all operating radii (outreach) for all permissible boom lengths and jib lengths as applicable, with and without outriggers, and alternate ratings for optional equipment affecting such ratings. Precautions or warnings specified by the owner or manufacturer shall be included along with the chart.

(2) The manufacturer's (or design) rated loads for the conditions of use shall not be exceeded.

(3) Designated working loads shall not be increased beyond the manufacturer's ratings or original design limitations unless such increase receives the manufacturer's approval. When the manufacturer's services are not available or where the equipment is of foreign manufacture, engineering design analysis shall be performed or approved by a person accredited for certificating the equipment under Part 1919 of this chapter. Engineering design analysis shall be performed by a registered professional engineer competent in the field of cranes and derricks. Any structural changes necessitated by the change in rating shall be carried out.

(c) *Radius indicator.* When the rated load varies with the boom radius, the crane or derrick shall be fitted with a boom angle or radius indicator visible to the operator.

(d) *Prohibited usage.* (1) Equipment shall not be used in a manner that exerts sideloading stresses upon the crane or derrick boom.

(2) No crane or derrick having a visible or known defect that affects safe operation shall be used.

(e) *Protective devices.* (1) When exposed moving parts such as gears, chains and chain sprockets present a hazard to employees during crane and derrick operations, those parts shall be securely guarded.

(2) Crane hooks shall be latched or otherwise secured to prevent accidental load disengagement.

(f) *General.* (1) Operating controls. (i) Crane and derrick operating controls shall be clearly marked, or a chart indicating their function shall be posted at the operator's position.

(ii) After October 3, 1984, overhead bridge and container gantry crane operating control levers shall be self-centering so that they will automatically move to the "off" position when the operator releases the control.

(2) Booms. Cranes with elevatable booms and without operable automatic limiting devices shall be provided with boom stops if boom elevation can exceed maximum design angles from the horizontal.

(3) Foot pedals. Foot pedals shall have a non-skid surface.

(4) Access. Ladders, stairways, stanchions, grab irons, foot steps or equivalent means shall be provided as necessary to ensure safe access to footwalks, cab platforms, the cab and any portion of the superstructure which employees must reach.

(i) Footwalks shall be of rigid construction, and shall be capable of supporting a load of 100 pounds (4.79 kPa) per square foot.

(ii) If more than 20 feet (6.1 m) in height, vertical ladders shall comply with § 1917.118 (d), (e)(1), (e)(2)(iii), and (e)(2)(iv).

(iii) Stairways on cranes shall be equipped with rigid handrails meeting the requirements of § 1917.112(e)(1).

(iv) If the top of a ladder or stairway or any position thereof is located where a moving part of a crane, such as a revolving house, could strike an employee ascending or descending the ladder or stairway, a prominent warning sign shall be posted at the foot of the ladder or stairway. A system of communication (such as a buzzer or bell) shall be established and maintained between the foot of the ladder or stairway and the operator's cab.

(5) Operator's station. The cab, controls and mechanism of the equipment shall be so arranged that the operator has a clear view of the load or signalman, when one is used. Cab glass, when used, shall be safety plate glass or equivalent and good visibility shall be maintained through the glass. Clothing, tools and equipment shall be stored so as not to interfere with access, operation, and the operator's view.

(6) Counterweights or ballast. Cranes shall be operated only with the specified type and amount of ballast or counterweights. Ballast or counterweight shall be located and secured only as provided in the manufacturer's or design specifications, which shall be available.

(7) Outriggers. Outriggers shall be used according to the manufacturer's specifications or design data, which shall be avialable. Floats, when used, shall be securely attached to the outriggers. Wood blocks or other support shall be of sufficient size to support the outrigger, free of defects that may affect safety and of sufficient width and length to prevent the crane from shifting or toppling under load.

(8) Exhaust gases. Engine exhaust gases shall be discharged away from the normal position of crane operating personnel.

(9) Electrical equipment shall be so located or enclosed that live parts will not be exposed to accidental contact. Designated persons may work on energized equipment only if necessary during inspection, maintenance, or repair.

(10) Fire extinguisher. (i) At least one portable fire extinguisher of at least 5-BC rating or equivalent shall be accessible in the cab of the crane or derrick.

(ii) No portable fire extinguisher using carbon tetrachloride or chlorobromomethane extinguishing agents shall be used.

(11) Rope on drums. At least three full turns of rope shall remain on ungrooved drums, and two turns on grooved drums, under all operating conditions. Wire rope shall be secured to drums by clamps, U-bolts, shackles or equivalent means. Fiber rope fastenings are prohibited.

(12) Assembly or disassembly of boom sections. Mobile crane booms being assembled or disassembled on the ground with or without the support of the boom harness shall be blocked to prevent dropping of the boom or boom sections.

(13) Brakes. (i) Each independent hoisting unit of a crane shall be equipped with at least one holding brake, applied directly to the motor shaft or gear train.

(ii) Each independent hoisting unit of a crane, except worm geared hoists, the angle of whose worm is such as to prevent the load from accellerating in the lowering direction, shall, in addition to a holding brake, be equipped with a controlled braking means to control lowering speeds.

(iii) Holding brakes for hoist units shall have not less than the following percentage of the rated load hoisting torque at the point where the brake is applied:

(A) 125 percent when used with a controlled braking means.

(B) 100 percent when used with a mechanically-controlled braking means.

(C) 100 percent when two holding brakes are provided.

(iv) All power control braking means shall be capable of maintaining safe lowering speeds of rated loads.

(g) *Rail-mounted cranes (excluding locomotive types).* (1) For the purposes of this section, rail-mounted cranes include bridge cranes and portal cranes.

(2) Rated load marking. The rated loads of bridge cranes shall be plainly marked on each side of the crane and in the cab. If there is more than one hoisting unit, each hoist shall have its rated load marked on it or on its load block. Marking shall be legible from the ground level.

(3) Wind-indicating devices. (i) After October 3, 1983, each rail-mounted bridge and portal crane located outside of an enclosed structure shall be fitted with an operable wind-indicating device.

(ii) The wind indicating device shall provide a visible or audible warning to alert the operator of high wind conditions. That warning shall be transmit-

l whenever the following circumnces are present:
A) When wind velocity reaches the rning speed, not exceeding the ne manufacturer's recommendans; and
B) When wind velocity reaches the utdown speed, not exceeding the ne manufacturer's recommendns, at which work is to be stopped d the crane secured.
iii) Instructions. The employer shall st operating instructions for high nd conditions in the operator's cab each crane. Operators shall be dited to comply with these instrucns. The instructions shall include ocedures for responding to high nd alerts and for any coordination cessary with other cranes.
4) Securing of cranes in high winds. When the wind reaches the crane's rning speed:
A) Gantry travel shall be stopped; d
B) The crane shall be readied for utdown.
ii) When the wind reaches the ne's shutdown speed:
A) Any portion of the crane spanng or partially spanning a vessel all be moved clear of the vessel if le to do so; and
B) The crane shall be secured ainst travel, using all available eans of securing.
5) The employer shall monitor local ather conditions by subscribing to a ather service or using equally effece means.
6) Stops and bumpers. (i) The ends all tracks shall be equipped with ops or bumpers. If a stop engages e tread of the wheel, it shall be of a ight not less than the radius of the heel.
ii) When more than one crane opers on the same runway or more than e trolley on the same bridge, each ane or trolley shall be equipped with mpers or equivalent devices at adjant ends subject to impact.
7) Employee exposure to crane ovement. When employees may be in e vicinity of the tracks, crane trucks all be equipped with personnel-decting guards.
8) Pedestrian clearance. If the track ea is used for employee passage or for work, a minimum clearance of three feet (0.9 m) shall be provided between trucks or the structures of rail-mounted cranes and any other structure or obstruction. When the required clearance is not available on at least one side of the crane's trucks, the area shall not be used and shall be marked and identified.

(9) Warning devices. Rail-mounted cranes shall be equipped with an effective travel warning device which shall be used to warn employees who may be in the path of the moving crane.

(10) Communications. Means of communication shall be provided between the operator's cab and the base of the gantry of all rail-mounted cranes. This requirement may be met by telephone, radio, sound-signalling system or other effective methods, but not solely by hand-signalling.

(h) *Stabilizing of locomotive cranes.* Loads may be hoisted by locomotive cranes only if outriggers are in place, unless means are taken to prevent the load being carried by the truck springs of the crane.

(i) *Operations.* (1) Use of cranes together. When two or more cranes hoist a load in unison, a designated person shall direct the operation and instruct personnel in positioning, rigging of the load and movements to be made.

(2) Guarding of swing radius. Accessible areas within the swing radius of the body of a revolving crane shall be physically guarded during operations to prevent an employee from being caught between the body of the crane and any fixed structure or between parts of the crane.

(3) Securing mobile crane components in transit. The crane's superstructure and boom shall be secured against rotation and carried in line with the direction of travel except when negotiating turns with an operator in the cab or when the boom is supported on a dolly. The empty hook or other attachment shall be secured.

(4) Unattended cranes. The following steps shall be taken before leaving a crane unattended between work periods:

(i) Suspended loads, such as those hoisted by lifting magnets or clamshell buckets, shall be landed unless

the storage position or maximum hoisting of the suspended device will provide equivalent safety;

(ii) Clutches shall be disengaged;

(iii) The power supply shall be shut off;

(iv) The crane shall be secured against accidental travel; and

(v) The boom shall be lowered or secured against movement.

(5) Operating near electric power lines. (i) Clearance. Unless electrical distribution and transmitting lines are deenergized and visibly grounded at point of work, or unless insulating barriers not a part of or an attachment to the crane have been erected to prevent physical contact with lines, cranes may be operated near power lines only in accordance with following:

(A) For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet (3 m);

(B) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be either 10 feet (3 m) plus 0.4 inch (10 mm) for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet; and

(C) In transit with no load and boom lowered, the clearance shall be a minimum of 4 feet (1.2 m).

(ii) Boom guards. Cage-type boom guards, insulating links or proximity warning devices may be used on cranes, but they shall not be used in place of the clearances required by paragraph (i)(5)(i) of this section.

(iii) Determination of energized lines. Any overhead line shall be presumed to be energized until the owner of the line indicates that it is not energized.

(j) *Protection for employees being hoisted.* (1) No employee shall be hoisted by the load hoisting apparatus of a crane or derrick except:

(i) On intermodal container spreaders, equipped in accordance with paragraph (j)(8) of this section; or

(ii) In a boatswain's chair or other device rigged to prevent it from accidental disengagement from the hook or supporting member; or

(iii) On a platform meeting the following requirements:

(A) Enclosed by a railing or other means providing protection equivalent to that described in § 1917.112(c). If equipped with open railings, the platform shall be fitted with toe boards;

(B) Having a safety factor of four based on ultimate strength;

(C) Bearing a plate or permanent marking indicating maximum load rating, which shall not be exceeded, and the weight of the platform itself;

(D) Equipment with a device to prevent access doors, when used, from opening accidentally;

(E) Equipped with overhead protection for employees on the platform if they are exposed to falling objects or overhead hazards;

(F) Secured to the load line by means other than wedge and socket attachments, unless the free (bitter) end of the line is secured back to itself by a clamp placed as close above the wedge as possible.

(2) Except in an emergency, the hoisting mechanism of all overhead and container gantry cranes used to hoist personnel shall operate in power up and power down, with automatic brake application when not hoisting or lowering.

(3) Variable radius booms of a crane or derrick used to hoist personnel shall be so constructed or secured as to prevent accidental boom movement.

(4) Platforms or devices used to hoist employees shall be inspected for defects before each day's use and shall be removed from service if defective.

(5) Employees being hoisted shall remain in continuous sight of and communication with the operator or signalman.

(6) Operators shall remain at the controls when employees are hoisted.

(7) Cranes shall not travel while employees are hoisted, except in emergency or in normal tier to tier transfer of employees during container operations.

(8) When intermodal container spreaders are used to transfer employees to or from the tops of containers, the spreaders shall be equipped with a personnel platform equipped with fixed railings, provided that the railings have one or more openings for access. The openings shall be fitted with a means of closure, such as

chains with hooks. Existing railings shall be at least 36 inches (0.91 m) in height. New railings installed after October 3, 1983 shall be 42 inches (1.07 m), plus or minus 3 inches (7.6 cm), in height. The provisions of paragraphs (j)(1)(iii)(C), (j)(1)(iii)(D), and (j)(1)(iii)(F) of this section also apply to personnel platforms when such container spreaders are used.

(k) *Routine inspection.* (1) Designated persons shall visually inspect each crane and derrick on each day of use for defects in functional operating components and shall report any defect found to the employer. The employer shall inform the operator of the findings.

(2) A designated person shall thoroughly inspect all functional components and accessible structural features of each crane or device at monthly intervals.

(3) Any defects found during such inspections which may create a safety hazard shall be corrected before further equipment use. Repairs shall be performed only by designated persons.

(4) A record of monthly inspections shall be maintained for six months in or on the crane or derrick or at the terminal.

§ 1917.46 Crane load and limit devices.

(a)(1) Except as provided in paragraph (a)(1)(viii) of this section, every crane after October 3, 1984 shall be fitted with a load indicating device or alternative device in proper working condition which shall meet the following criteria:

(i) The type or model or any load indicating or alternate device which is used shall provide:

(A) A direct indication in the cab of actual weight hoisted or a means of determining this by referencing a weight indication to crane ratings posted and visible to the operator, except that the use of a dynamometer or simple scale alone will not meet this requirement; or

(B) Indications in the cab according to the radius and load at the moment; or

(C) A direct means to prevent an overload from occurring.

(ii) Accuracy of the devices required by this section shall be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range from no less than 95 percent of the actual true total load (5 percent overload) to 110 percent of the actual true total load (10 percent underload). Such accuracy shall be required over the range of the daily operating variables to be expected under the conditions of use.

(iii) The device shall permit the operator to determine, before making any lift, that the indicating or substitute system is operative. In the alternative, if a device is so mounted or attached to preclude such a determination, it may not be used unless it has been certified by the manufacturer to remain operable within the limits stated in paragraph (a)(1)(ii) of this section for a specific period of use. Checks for accuracy, using known values of load, shall be performed at the time of every certification survey (see § 1917.50) and at such additional times as may be recommended by the manufacturer.

(iv) When a load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

(v) Marking shall be conspicuously placed giving: units of measure in pounds or both pounds and kilograms, capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions. In the case of systems utilizing indications other than actual weights, the marking shall include data on: the means of measurement, capacity of the system, accuracy of the system, and operating instructions and precautions. If the system used provides no readout, but is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking shall be provided giving the make and model of the device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indica-

tions, and other data required shall be readily visible to the operator.

(vi) All load indicating devices shall be operative over the full operating radius. Overall accuracy shall be based on actual applied load and not on full scale (full capacity) load.

EXPLANATORY NOTE: For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus/minus 10 percent, it would accept a reading between 90,000 and 110,000 lbs., at full capacity of a machine with 100,000 lbs., maximum rating, but would also allow a reading between zero and 20,000 lbs., at that outreach (radius) at which the rating would be 10,000 lbs., capacity—an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the 100,000-lb. load but becomes a figure between 9,000 and 11,000 lbs., a much different and acceptable condition, at the 10,000-lb. load.

(vii) When the device uses the radius as a factor in its use or in its operating indications, the indicated radius (which may be in feet and/or meters, or degrees of boom angle, depending on the system used) shall be a figure which is within the range of a figure no greater than 110 percent of the actual radius to a figure which is no less than 97 percent of the actual (true) radius. A conversion chart shall be provided whenever it is necessary to convert between degrees of radius and feet or meters.

(viii) The load indicating device requirements of this subparagraph do not apply to a crane:

(A) Of trolley equipped bridge type while handling containers known to be and identified as empty, or loaded, and in either case in compliance with the provisions of § 1917.71 of this part, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose, and in all cases within the crane rating;

(B) While handling bulk commodities or cargoes by means of clamshell bucket or magnet;

(C) While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or

(D) While the crane is used exclusively to handle cargo or equipment the total actual gross weight of which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds 11,200 lbs., and when 11,200 lbs., is less than the rated capacity of the crane at the maximum outreach that is possible under the conditions of use at the time.

§ 1917.47 Winches.

(a) Moving winch parts which present caught-in hazards to employees shall be guarded.

(b) Winches shall have clearly identifiable and readily accessible stop controls.

(c) Portable winches shall be secured against accidental shifting while in use.

(d) Portable winches shall be fitted with limit switches if employees have access to areas from which it is possible to be drawn into the winch.

(e) The provisions of § 1917.45(f)(11) shall apply to winches.

§ 1917.48 Conveyors.

(a) *Guards.* (1) Danger zones at or adjacent to conveyors shall be guarded to protect employees.

(2) An elevated walkway with guardrail or equivalent means of protection shall be provided where employees cross over moving conveyors, and suitable guarding shall be provided when employees pass under moving conveyors.

(b) *Moving parts.* Conveyor rollers and wheels shall be secured in position.

(c) *Positioning.* Gravity conveyor sections shall be firmly placed and secured to prevent them from falling.

(d) *Braking.* (1) When necessary for safe operation, provisions shall be made for braking objects at the delivery end of the conveyor.

(2) Conveyor using electrically released brakes shall be constructed so that the brakes cannot be released until power is applied, and that the brakes are automatically engaged if the power fails or the operating control is returned to the "stop" position.

(e) *Stability.* Portable conveyors shall be stable within their operating ranges. When used at variable fixed

evels, the unit shall be secured at the operating level.

(f) *Emergency stop devices.* Readily accessible stop controls shall be provided for use in an emergency. Whenever the operation of any power conveyor requires personnel to work in the immediate vicinity of the conveyor, the Conveyor or controls shall not be left unattended while the conveyor is in operation.

(g) *Starting powered conveyors.* Powered conveyors shall not be started until all employees are clear of the conveyor or have been warned that the conveyor is about to start.

(h) *Loading and unloading.* The area around conveyor loading and unloading points shall be kept clear of obstructions during conveyor operations.

(i) *Lockout/Tagout.* (1) Conveyors shall be stopped and their power sources locked out and tagged out during maintenance, repair, and servicing, unless power is necessary for testing.

(2) The starting device shall be locked out and tagged out in the stop position before an attempt is made to remove the cause of a jam or overload of the conveying medium, unless it is necessary to have the power on to remove the jam.

(j) *Safe practices.* (1) Only designated persons shall operate, repair or service powered conveyors.

(2) The employer shall direct employees to stay off operating conveyors.

(3) Conveyors shall be operated only with all overload devices, guards and safety devices in place and operable.

§ 1917.49 Spouts, chutes, hoppers, bins, and associated equipment.

(a) Standing and running rigging and associated gear used as a permanent part of spouts, chutes or similar devices shall be inspected before each use and shall not be used if it has any functional defects. (See also § 1917.50(c)(2) for certification requirements.)

(b) Direct communication shall be provided between the discharge or shipboard control end of loading spouts and chutes and the point in the terminal from which the flow of cargo is controlled.

(c) Chute and hopper openings which present a hazard shall be guarded to prevent employees from falling through them.

(d) When employees are working on hoppers, the hopper shall be equipped with a safe walkway and means of access.

(e) When necessary for the safety of employees, chutes shall be equipped with sideboards to afford protection from falling objects.

(f) Chutes shall be firmly placed and secured to prevent them from falling.

(g) When necessary for the safety of employees, provisions shall be made for braking objects other than bulk commodities at the delivery end of the chute.

(h) Before an employee enters an empty bin:

(1) Personnel controlling the flow of cargo into the bin shall have been notified of the entry; and

(2) The power supply to the equipment carrying the cargo to the bin shall be turned off, locked out and tagged.

(i) Before an employee enters a bin containing a bulk commodity such as coal or sugar, the employer shall ensure that:

(1) Personnel controlling the flow of cargo into the bin have been notified of the entry;

(2) The power supply to the equipment carrying the cargo to the bin is turned off, locked out and tagged.

(3) The employee entering the bin wears a lifeline and safety harness; and

(4) A standby attendant equipped to perform a rescue is continuously stationed outside the bin until the employee has left the bin.

(j) Bin top openings that present a hazard to employees shall be covered to prevent employees from falling into bins.

(k) Chutes and hoppers shall be repaired only by designated persons.

(l)(1) Before power shoveling operations begin, a designated person shall inspect the equipment to be used. The inspection shall include at least the eye bolts, wires, and sheaves.

(2) Power shovels and associated equipment with defects affecting safe operation shall not be used.

(3) Before adjustments are made to a power shovel, wire, or associated equipment, the power supply to the shovel shall be turned off, locked out, and tagged, the belt stopped, and the hopper closed.

§ 1917.50 Certification of marine terminal material handling devices.

(a) The employer shall not use any material handling device listed in paragraph (c) of this section until he has ascertained that the device has been certificated, as evidenced by current and valid documents attesting to compliance with the requirements of paragraph (b) of this section.

(1) Certification surveys are to be completed for the conditions of use found at the time such surveys are completed, with the understanding that equipment owners/users can change the configurations of the equipment according to the manufacturer's specifications without affecting the established certification status for the equipment.

(2) In cases of foreign manufactured cranes, there shall be an owner's warranty that the design is adequate for the intended use. The warranty shall be based on a thorough examination of the design specifications by a registered professional engineer familiar with the equipment.

(b) The certifications required by this section shall be performed:

(1) In accordance with Part 1919 of this chapter, by persons then currently accredited by the Occupational Safety and Health Administration as provided in that part; or

(2) In accordance with standards established and enforced by the state in which the device is located or by a political subdivision thereof, which have been found by the Secretary to be compatible with Part 1919 of this chapter, by persons designated as competent to perform such certification by competent state authority and recognized as such by the Secretary.

(c) The marine terminal material handling devices listed below shall be certificated in the following manner:

(1) Each crane and derrick shall be tested as a unit quadrennially, and shall be examined annually. Certificates of tests and examinations shall be made readily available for inspection.

(2) Bulk cargo spouts and suckers, together with any portable extensions and rigging or outriggers supporting them vertically, shall be examined annually. Certificates attesting to the required examination shall be made readily available for inspection.

(3) Vertical pocket or bucket conveyors such as banana, sugar, and grain marine legs (other than those within a grain elevator structure) used within a marine terminal facility shall be examined annually. The annual examination shall include all supporting structures, rigging and mechanical components and observation of all steps of operations. Certificates attesting to the required examinations shall be readily available for inspection.

(4)(i) House fall cargo-handling gear in use shall be proof load tested as a unit upon initial certification and every fourth year thereafter. An examination shall be carried out in conjunction with each unit proof load test and annually thereafter. The unit test shall consist of a proof load of 25 percent in excess of the rated safe working load. Examinations shall include all supporting structures and components. Certificates attesting to the required tests and examinations shall be readily available for inspection.

(ii) House fall span beams or other house fall block supports shall be marked with the safe working load, which shall not be exceeded.

(5) Special gear. (i) Special stevedoring gear provided by the employer, the strength of which depends upon components other than commonly used stock items such as shackles, ropes or chains, shall be tested as a unit in accordance with the following table before initially being put into use.

Safe working load	Proof load
Up to 20 short tons	25 percent in excess.
Over 20 to 50 short tons.	5 short tons in excess.
Over 50 short tons	10 percent in excess.

(ii) Every spreader not a part of ship's gear and used for hoisting intermodal containers shall be tested to a proof load equal to 25 percent in excess of its rated capacity. Additionally, any spreader which suffers damage necessitating structural repair shall be retested after repair and before being returned to service.

(iii) Certificates attesting to the required tests shall be available for inspection.

(6) Wire rope and loose gear obtained after October 3, 1983, and used for material handling shall have been tested and certificated before being placed into use in accordance with the provisions of paragraphs (a), (c), and (d) of §§ 1919.31 and 1919.32 through 1919.34 of this chapter as applicable. Certificates attesting to the required tests, inspections and examinations shall be available.

(d) Disassembly and reassembly of equipment does not require recertification of the equipment provided that the equipment is reassembled and used in a manner consistent with its certification.

(e) For equipment certificated in accordance with paragraph (b)(2) of this section and transferred to a job site in another state, the current certification shall remain valid until the next inspection or examination becomes due.

(f) Certification procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year.

(g)(1) Every unit of equipment requiring quadrennial certification shall have had such quadrennial certification within the previous 48 months. Equipment requiring annual certification shall have had such annual certification within the previous 12 months, except that no annual certification is required within 12 months after any required quadrennial certification. Annual examinations for certification may be accomplished up to one month early without effect on subsequent due dates.

(2) When certificated equipment is out of service for 6 months or more beyond the due date of a certification inspection, an examination equivalent to an initial certification, including unit proof load test, shall be performed before the equipment re-enters service.

(h) Loose gear obtained after October 3, 1983 shall bear a legible mark indicating that it has been tested (see paragraph(c)(6) of this section). Single sheave blocks shall be marked with safe working loads and proof test loads. Marks relating to testing shall be identifiable on the related certificates, which shall be available.

(i) The certification requirements of this section do not apply to the following equipment:

(1) Industrial trucks and small industrial crane trucks; and

(2) Any straddle truck not capable of straddling two or more intermodal containers 16 feet (4.88 m) in width.

(Approved by the Office of Management and Budget under control number 1218-0003)

[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984]

§ 1917.51 Hand tools.

(a) Hand tools used by employees shall be maintained in safe operating condition.

(b)(1) Hand-held portable electric tools shall be equipped with switches that must be manually held in a closed position to operate the tool.

(2) Portable power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc needed to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

(c) Only cutting tools shall be used to cut metal strapping or banding used to secure cargo.

Subpart D—Specialized Terminals

§ 1917.70 General.

The provisions of this Subpart D shall apply to specialized terminals in

addition to any other applicable requirements of this part.

§ 1917.71 Terminals handling intermodal containers or roll-on roll-off operations.

(a) Every intermodal container shall be legibly and permanently marked with:

(1) The weight of the container when empty, in pounds;

(2) The maximum cargo weight the container is designed to carry, in pounds; and

(3) The sum of the weight of the container and the cargo, in pounds.

(b) No container shall be hoisted by any crane or derrick unless the following conditions have been met:

(1) The employer shall ascertain from the carrier whether a container to be hoisted is loaded or empty. Empty containers shall be identified before loading or discharge in such a manner as will inform every supervisor and foreman on the site and in charge of loading or discharging, or every crane or other hoisting equipment operator and signalman, if any, that such container is empty. Methods of identification may include cargo plans, manifests or markings on the container.

(2) In the case of a loaded container:

(i) The actual gross weight shall be plainly marked so as to be visible to the crane or other hoisting equipment operator or signalman, or to every supervisor and foreman on the site and in charge of the operation; or

(ii) the cargo stowage plan or equivalent permanently recorded display serving the same purpose, containing the actual gross weight and the serial number or other positive identification of that specific container, shall be provided to the crane or other hoisting equipment operator and signalman, if any, and to every supervisor and foreman on the site and in charge of the operation.

(3) Every outbound loaded container which is received at a marine terminal ready to load aboard a vessel without further consolidation or loading shall be weighed to obtain the actual gross weight, either at the terminal or elsewhere, before being hoisted.

(4)(i) When container weighing scales are located at a marine terminal, any outbound container with load consolidated at that terminal shall be weighed to obtain an actual weight before being hoisted.

(ii) If the terminal has no scales, the actual gross weight may be calculated on the basis of the container's contents and the container's empty weight. The weights used in the calculation shall be posted conspicuously on the container, with the name of the person making the calculation and the date.

(5) Open type vehicle carrying containers and those built specifically and used solely for the carriage of compressed gases are excepted from paragraphs (b)(3) and (b)(4) of this section.

(6) The weight of loaded inbound containers from foreign ports shall be determined by weighing or by the method of calculation described in paragraph (b)(4)(ii) or by shipping documents.

(7) Any scale used within the United States to weigh containers for the purpose of the requirements of this section shall meet the accuracy standards of the state or local public authority in which the scale is located.

(c) No container or containers shall be hoisted if its actual gross weight exceeds the weight marked as required in paragraph (a)(3) of this section, or if it exceeds the capacity of the crane or other hoisting device intended to be used.

(d)(1) Marked or designated areas shall be set aside within a container or roll-on roll-off terminal for passage of employees to and from active cargo transfer points, except where transportation to and from those points is provided by the employer.

(2) The employer shall direct employees to stay clear of the area beneath a suspended container.

(e) Employees working in the immediate area of container handling equipment or in the terminal's traffic lanes shall wear high visibility vests, decals, reflectors or equivalent protection.

(f) Containers shall be handled using lifting fittings or other arrangements suitable and intended for the purpose as set forth in paragraphs (f)(1) through (f)(3) of this section, except

when damage to an intermodal container makes special means of handling necessary.

(1) Loaded intermodal containers of 20 feet (6.1 m) or more in length shall be hoisted as follows:

(i) When hoisting by the top fittings, the lifting forces shall be applied vertically from at least four (4) such fittings or by means which will safely do so without damage to the container, and using the lifting fittings provided.

(ii) If hoisted from bottom fittings, the hoisting connections shall bear on the fittings only, making no other contact with the container. The angles of the four bridle legs shall not be less than 30° to the horizontal in the case of 40 foot (12.2 m) containers, 37° in the case of 30 foot (9.1 m) containers, and 45° in the case of 20 foot (6.1 m) containers.

(iii) Lifting containers by fork lift trucks or by grappling arms from above or from one side may be done only if the container is designed for this type of handling.

(iv) Other means of hoisting may be used only if the containers and hoisting means are designed for such use.

(2)(i) When using intermodal container spreaders that employ lanyards for activation of load disengagement, all possible precautions shall be taken to prevent accidental release of the load.

(ii) Intermodal container spreader twistlock systems shall be designed and used so that a suspended load cannot accidentally be released.

(3) Flat bed trucks or container chassis used to move intermodal containers shall be equipped with pins, flanges, or other means to prevent the container from shifting.

(g)(1) Intermodal containers shall be inspected for defects in structural members or fittings before handling.

(2) Any intermodal container found to be unsafe shall be identified as such, promptly removed from service and repaired before being returned to service.

(h) Containers shall not be hoisted unless all engaged chassis twist locks are released.

§ 1917.73 Terminal facilities handling menhaden and similar species of fish.

(a)(1) Tanks in terminal areas used for receiving or storing brailwater for recirculating into vessel holds in discharging operations shall be opened or ventilated to minimize contamination of water circulated to the vessel. Brailwater tanks shall be thoroughly drained upon completion of each day's operations and shall be left open to the air. Drainage is unnecessary when brailwater has been treated to remove hydrogen sulfide-producing contaminants and the efficiency of such treatment has been established by the employer.

(2) Before employees enter a dock tank, it shall first be drained, rinsed and tested for hydrogen sulfide and oxygen deficiency. Employees shall not enter the tank when the hydrogen sulfide level exceeds 20 ppm or oxygen content is less than 19.5 percent, except in emergencies.

(3) Tests shall be conducted by designated personnel with suitable test equipment and respiratory protective equipment complying with the provisions of § 1910.134 of this chapter.

(b) Pipelines and hoses on the dock or terminal used for receiving and circulating used brailwater shall be completely drained upon completion of each day's operation and left open to the air.

(c) At least four units of respiratory protective equipment consisting of supplied-air respirators or self-contained breathing apparatus complying with the requirements of § 1910.134 of this chapter shall be available in a suitably labeled cabinet for immediate use in case of emergency caused by oxygen deficiency or hydrogen sulfide. Any employee entering a tank in an emergency shall, in addition to respiratory protective equipment, wear a lifeline and safety harness to facilitate rescue. At least two other employees, similarly equipped, shall be continuously stationed outside the tank to observe and to provide rescue services.

(d) The plant superintendent and foremen shall be trained and knowledgeable about the hazards of hydrogen sulfide and oxygen deficiency. They shall be trained in the use of ap-

propriate respiratory and other protective equipment, and in rescue procedures. Other supervisory plant personnel shall be informed of these hazards and instructed in the necessary safety measures, including use of respiratory and rescue equipment.

(e) Supervisory personnel shall be on hand at dockside to supervise discharging of brailwater from vessels.

Subpart E—Personal Protection

§ 1917.91 Eye protection.

(a)(1) When employees perform work hazardous to the eyes, the employer shall provide eye protection equipment marked or labeled as meeting the manufacturing specifications of American National Standards Practice for Occupational and Educational Eye and Face Protection, ANSI Z87.1-1968, and shall direct that it be used.

(2) For employees wearing corrective spectacles, eye protection equipment required by paragraph (a)(1) of this section must be of a type which can be worn over spectacles. Prescription ground safety lenses may be substituted if they provide equivalent protection.

(3) For additional requirements covering eye protection against radiant energy, see § 1917.152(h).

(b) Eye protection equipment shall be maintained in good condition.

(c) Used eye protection equipment shall be cleaned and disinfected before reissuance to another employee.

§ 1917.92 Respiratory protection.

(See § 1917.1(a)(2)(viii))

§ 1917.93 Head protection.

(a) The employer shall direct that employees exposed to impact, falling or flying objects, or electric shocks or burns wear protective hats.

(b) Protective hats shall bear identifying marks or labels indicating compliance with the manufacturing provisions of American National Standard Safety Requirements for Industrial Head Protection, ANSI Z89.1-1969.

(c) Protective hats previously worn shall be cleaned and disinfected before issuance by the employer to another employee.

§ 1917.94 Foot protection.

(a) The employer shall direct that employees exposed to impact, falling objects, or puncture hazards wear safety shoes, or equivalent protection.

(b) Protective shoes shall bear identifying marks or labels indicating compliance with the manufacturing provisions of American National Standard for Men's Safety Toe Footwear, ANSI Z41.1-1967.

§ 1917.95 Other protective measures.

(a) *Protective clothing.* (1) Employees performing work that requires special protective clothing shall be directed by the employer to wear the necessary special protective clothing.

(2) When necessary, protective clothing previously worn shall be cleaned and disinfected before reissuance.

(b)(1) The employer shall provide, and shall direct the wearing of personal flotation devices for those employees, such as line handlers, who are engaged in work in which they may be pulled into the water:

(i) when such employees are working in isolation, or

(ii) where physical limitations of available working space creates a hazard of falling into the water, or

(iii) where the work area is obstructed by cargo or other obstacles so as to prevent employees from obtaining safe footing for their work.

(2) Personal flotation devices shall be United States Coast Guard approved Type I PFD, Type II PFD, Type III PFD, or Type V PFD, or equivalent, in accordance with 46 CFR Part 160 (Coast Guard Lifesaving Equipment Specifications) and 33 CFR 175.23 (Coast Guard table of devices equivalent to personal flotation devices).

(3) Personal flotation devices shall be maintained in safe condition and shall be considered unserviceable when damaged so as to affect buoyancy or fastening capability.

(c) *Emergency facilities.* When employees are exposed to hazardous substances which may require emergency bathing, eye washing or other facilities, the employer shall provide such

facilities and maintain them in good working order.

Subpart F—Terminal Facilities

§ 1917.111 Maintenance and load limits.

(a) The structural integrity of docks, piers, wharves, terminals and working surfaces shall be maintained.

(b) Maximum safe load limits, in pounds per square foot (kilograms per square meter), of floors elevated above ground level, and pier structures over the water shall be conspicuously posted in all cargo areas.

(c) Maximum safe load limits shall not be exceeded.

(d) All walking and working surfaces in the terminal area shall be maintained in good repair.

§ 1917.112 Guarding of edges.

(a) *Vehicle protection.* (1) Vehicle curbs, bull rails, or other effective barriers at least 6 inches (13.74 cm) in height, shall be provided at the waterside edges of aprons and bulkheads, except where vehicles are prohibited. Curbs or bull rails installed after (effective date of standard) shall be at least 10 inches (22.9 cm) in height.

(2) The provisions of paragraph (a)(1) of this section also apply at the edge of any fixed level above the common floor area from which vehicles may fall, except at loading docks, platforms and skids where cargo is moved by vehicles.

(b) *Employee protection.* (1) Guardrails shall be provided at locations where employees are exposed to floor or wall openings or waterside edges, including bridges or gangway-like structures leading to pilings or vessel mooring or berthing installations, which present a hazard of falling more than 4 feet (1.22 m) or into the water, except as specified in paragraph (b)(2) of this section.

(2) Guardrails are not required:

(i) At loading platforms and docks;

(ii) At waterside edges used for cargo handling;

(iii) On the working sides of work platforms, skids or similar workplaces; or

(iv) On railroad rolling stock, highway vehicles, intermodal containers or similar equipment.

(3) Where guardrails are impracticable due to machinery requirements or work processes, an alternate means of protecting employees from falling, such as nets, shall be used.

(c) *Criteria for guardrails.* Guardrails shall meet the following criteria:

(1) They shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction at mid-span of the top rail (when used), or at the uppermost point if there is no top rail.

(2) If not of solid baluster, grillwork, slatted or similar construction, guardrails shall consist of top rails and midrails. Midrails, when used, shall be positioned at approximately half the height of the top rail.

(3) The top surface of guardrails installed before October 3, 1983, shall be at least 36 inches (.091 m) high. Those installed after October 3, 1983, shall be 42 inches (1.07 m), plus or minus 2 inches (5.1 cm), high.

(4) Any non-rigid railing such as chain or wire rope shall have a maximum sag limit at the mid-point between posts of not more than 6 inches (15.2 cm).

(5) Top rails shall be free of puncture and laceration hazards.

(6) Rail ends shall not overhang to constitute a hazard, but this does not prohibit scrollwork, boxed ends or similar non-hazardous projections.

(d) *Toeboards.* Toeboards shall be provided when employees below could be exposed to falling objects such as tools. Toeboards shall be at least 3½ inches (8.9 cm) in height from top edge to floor level, and be capable of withstanding a force of 50 pounds (220 N) applied in any direction. Drainage clearance under toeboards is permitted.

(e) *Stair railings.* Stair railings shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction, and shall not be more than 36 inches (0.9 m) nor less than 32 inches (0.8 m) in height from the upper top rail surface to the tread surface in line with the leading edge of the tread. Railings and midrails shall be provided at any stairway having four or more risers, as follows:

(1) For stairways less than 44 inches (1.12 m) wide, at least one railing; and

(2) For stairways more than 44 inches (1.12 m) but less than 88 inches (2.24 m) wide, a stair rail or handrail on each side, and if 88 or more inches wide, an additional intermediate handrail.

(f) *Condition.* Railings shall be maintained free of sharp edges and in good repair.

§ 1917.113 Clearance heights.

Clearance heights shall be prominently posted where the height is insufficient for vehicles and equipment.

§ 1917.114 Cargo doors.

(a) *Mechanically operated.* (1) Cargo door counterweights shall be guarded.

(2) Lift trucks and cranes shall not be used to move mechanically operated doors except when necessary during repair on the doors, in which case ropes or other guarding shall be provided to prevent entry into the area where the door may fall or slide.

(3) Vertically operated doors partially opened for work or ventilation shall be secured to prevent accidental closing.

(b) *Tackle operated.* (1) The door shall be connected to its lifting tackle with shackles or equally secure means.

(2) Lifting bridles and tackles shall have a safety factor of five, based upon maximum anticipated static loading conditions.

(3) Devices shall be provided to hold overhead doors in the open position and to secure them when closed.

(4) Lifting gear and hardware shall be maintained in safe condition.

(5) Lifting ropes, when used, shall be placed out of the work area and off the floor.

(c) *Horizontal sliding.* (1) Horizontal sliding door rollers shall be constructed to prevent the door from jumping from overhead tracks.

(2) Sliding doors shall be secured to prevent them from swinging.

§ 1917.115 Platforms and skids.

(a) Platforms and skids extending from piers, transit sheds or lofts and used for landing or hooking on drafts shall be provided at the open sides with guardrails meeting the requirements of § 1917.112(c) or alternate means, such as nets, to protect employees against falls.

(b) Any employee working below a second-story platform or skid shall be protected from falling objects by a net stretched from the platform or skid to the vessel.

(c) Platforms and skids shall be strong enough to bear the loads handled and shall be maintained in safe condition. Safe working loads, which shall be posted or marked on or adjacent to platforms and skids, shall have a minimum safety factor of five for any part, based upon maximum anticipated static loading conditions and the ultimate strength of the construction material.

(d) The employer shall provide and maintain platform and skid attachments that will prevent accidental movement of the skid or platform.

§ 1917.116 Elevators and escalators.

(a) "Elevator" means a permanent hoisting and lowering mechanism with a car or platform moving vertically in guides and serving two or more floors of a structure. The term excludes such devices as conveyors, tiering or piling machines, material hoists, skip or furnace hoists, wharf ramps, lift bridges, car lifts and dumpers.

(b) "Escalator" means a power-driven continuous moving stairway principally intended for the use of persons.

(c) No elevator or escalator with a defect which affects safety shall be used.

(d) Elevator safety devices shall not be overridden or made inoperable.

(e) Elevators and escalators shall be thoroughly inspected at intervals not exceeding one year. Additional monthly inspections for satisfactory operation shall be conducted by designated persons. Records of the results of the latest annual elevator inspections shall be posted in elevators. Records of annual escalator inspections shall be posted in the vicinity of the escalator or be available at the terminal.

(f) Elevator landing openings shall be provided with doors, gates or equivalent protection which shall be in place when the elevator is not at that

landing, to prevent employees from falling into the shaft.

(g) The elevator's or escalator's maximum load limits shall be posted and not exceeded. Elevator load limits shall be posted conspicuously both inside and outside of the car.

(h) Elevators shall be operated only by designated persons except for automatic or door interlocking elevators which provide full shaft door closing and automatic car leveling.

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[48 FR 30909, July 5, 1983, as amended at 49 FR 28551, July 13, 1984]

§ 1917.117 Manlifts.

(a) *Inspection.* Manlifts shall be inspected monthly by a designated person. Safety switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until repaired. Inspections shall include at least the following:

(1) Step fastenings;
(2) Rails;
(3) Rail supports and fastenings;
(4) Roller and slides;
(5) Belt and belt tension;
(6) Handholds and fastenings;
(7) Floor landings;
(8) Guardrails;
(9) Lubrication;
(10) Safety switches;
(11) Warning signs and lights;
(12) Illumination;
(13) Drive pulley;
(14) Bottom (boot) pulley and clearance;
(15) Pulley supports;
(16) Motor;
(17) Drive mechanism;
(18) Brake;
(19) Electrical switches;
(20) Vibration and misalignment;
(21) "Skip" on up or down run when mounting the step (indicating worn gears); and
(22) Emergency exit ladders.

(b) *Inspection records.* Inspection records shall be kept for at least one year. The record of the most recent inspection shall be posted in the vicinity of the manlift or in the terminal.

(c) *Emergency stop.* An emergency stop device shall be available within easy reach from any position on the belt.

(d) *Instructions.* Manlift use instructions shall be conspicuously posted.

(e) *Top floor warning sign and light.* An illuminated sign and red light that are visible to the user shall be provided under the top floor opening of the manlift to warn the user to get off at that floor.

(f) *Bottom floor warning sign.* A sign visible to descending passengers shall be provided to warn them to get off at the bottom floor.

(g) *Upper limit stop.* An automatic stop device shall be provided to stop the manlift when a loaded step passes the top landing, except that manlifts installed after October 3, 1983 shall have two such devices.

(h) *Handholds and steps.* Each step shall be provided with a corresponding handhold.

(i) *Emergency ladder.* A fixed emergency ladder accessible from any position on the lift and in accordance with the requirements of § 1917.119(d) shall be provided for the entire run of the manlift.

(j) *Landings.* (1) Clear and unobstructed landing spaces shall be provided at each level. Manlifts constructed after October 3, 1983 and that have a distance of 50 feet (15.24 m) or more between floor landings shall have an emergency landing every 25 feet (7.62 m) or less of manlift travel.

(2) Open sides of emergency landings shall be protected by guardrails.

(3) Floor landing entrances and exits shall be guarded by mazes, self-closing gates, or equivalent devices.

(4) Landings shall be of sufficient size and strength to support 250 pounds (1120 N).

(k) *Floor opening guards.* The ascending sides of manlift floor openings shall be provided with cones or bevel guards to direct the user through the openings.

(l) *Maintenance.* Manlifts shall be equipped, maintained, and used in accordance with the manufacturer's specifications, which shall be available at the terminal.

(m) *Bottom pulley.* (1) The lower pulley shall be supported by the lowest landing.

(2) Sides of the bottom pulley support shall be guarded to prevent contact with the pulley or the steps.

(n) *Top clearance.* A clearance of at least 11 feet (3.3 m) shall be provided between the top landing and the ceiling.

(o) *Brakes.* Manlifts shall be equipped with brakes that are:

(1) Self-engaging;

(2) Electrically released; and

(3) Capable of stopping and holding the manlift when the descending side is loaded with the maximum rated load.

§ 1917.118 Fixed ladders.

(a) *Scope and applicability.* This section applies to all fixed ladders except:

(1) Ladders forming an integral part of railway cars, highway carriers, cargo containers or other transportation carrier equipment;

(2) Climbing devices such as step bolts or structural members of tanks and towers;

(3) Ladders built into or vertically attached to tubular scaffold framing; and

(4) Ladders used only for fire-fighting or emergency purposes.

(b) *Definitions.* (1) "Cage" (basket guard) means a barrier enclosing or nearly enclosing a ladder's climbing space and fastened to one or both of the ladder's side rails or to another structure.

(2) "Fixed ladder" means a ladder, including individual rung ladders, permanently attached to a structure, building or piece of equipment.

(3) "Ladder safety device" means a support system limiting an employee's drop or fall from the ladder, and which may incorporate friction brakes, lifelines and lanyards, or sliding attachments.

(4) "Well" means a permanent complete enclosure around a fixed ladder, which is attached to the walls of the well.

(c) *Defects.* (1) Ladders with broken, split or missing rungs, steps or rails, broken welds or connections, corrosion or wastage or other defect which may affect safe use shall be removed from service.

(2) Ladder repairs shall provide strength at least equivalent to that of the original ladder.

(d) *Ladder specifications.* (1)(i) Ladders installed before October 3, 1983, shall be capable of withstanding without damage a minimum concentrated load, applied uniformly over a 3½ inch (8.8 cm) width at the rung center, of 200 pounds (890 N).

(ii) Ladders installed after October 3, 1983 shall be capable of withstanding 250 pounds (1120 N) applied as described in paragraph (d)(1)(i) of this section. If used by more than one employee simultaneously, the ladder as a unit shall be capable of simultaneous additional loading in 250 pound (1120 N) increments for each additional employee, applied to a corresponding number of rungs. The unit shall have a safety factor of four (4), based on ultimate strength, in the designed service.

(2)(i) Ladders installed before October 3, 1983 shall have runs evenly spaced from 9 to 16½ inches (22.9 to 41.9 cm) apart, center to center.

(ii) Ladders installed after October 3, 1983 shall have rungs evenly spaced from 12±2 inches (30±5 cm) apart, center to center.

(3)(i) Ladders installed before October 3, 1983 shall have a width between side rails of at least 10 inches (25.4 cm).

(ii) Ladders installed after October 3, 1983 shall have a width between side rails of at least 12 inches (30.48 cm).

(4) The minimum distance between the rung center line and the nearest permanent object behind the rung shall be 4 inches (10.2 cm), except that in ladders installed after October 3, 1983, the minimum distance shall be 7 inches (17.8 cm) unless physical limitations make a lesser distance, not less than 4½ inches (11.5 cm), necessary.

(5) When a ladder passes through an opening or past overhead obstructions, a minimum 24 inch (.61 m) clearance shall exist between the climbing side and any obstruction. Where this distance is less than 30 inches (0.76 m), a deflection device shall be installed for guidance through the opening.

(6) The side rails of ladders shall extend at least 36 inches (0.91 m) above the top landing surface, unless

ab bars or equivalent holds are pro-
ded.

7) Ladders whose pitch exceeds 90°
the horizontal (slanting backward
the climbing side) shall not be used.

e) *Protection against falls.* (1) Fixed
ders more than 20 feet (6.1 m) in
ght shall be provided with a cage,
ll, or ladder safety device.

2) When a well or cage is used, lad-
s with length of climb exceeding 30
t (9.14 m) shall comply with the fol-
ing provisions:

i) The ladder shall consist of multi-
sections not exceeding 30 feet (9.14
each;

ii) Each section shall be horizontal-
offset from adjacent sections,
cept as specified in paragraph
2)(iv) of this section, and

iii) A landing platform capable of
porting a load of 100 pounds per
are foot (4.79 kPa) and fitted with
rdrails complying with
917.112(c) shall be provided at least
ry 30 feet (9.1 m), except as speci-
l in paragraph (e)(2)(iv) of this sec-
n.

v) For ladders installed after Octo-
3, 1983, offset sections and landing
tforms are not required if hinged
tforms capable of supporting 100
nds per square foot (4.79 kPa), and
ich are kept closed except when
ned for passage, are within the
e or well at intervals not exceeding
feet (9.14 m).

i) Ladders equipped with ladder
ety devices shall have rest plat-
ms;

) Capable of supporting a load of
pounds per square foot (4.79 kPa);

i) Located at intervals of 150 feet
m) or less; and

ii) Protected by guardrails comply-
with § 1917.112(c) of three sides.

i) Where used, ladder safety devices
ll:

) Be installed and maintained in ac-
dance with the manufacturer's in-
ictions, which shall be available for
pection;

i) Be repaired only with replace-
nt parts having performance capa-
ty at least equal to that of the
ginal parts;

ii) Have a connection length be-
en carrier centerlines and safety belts of 10±2 inches (25.4±5.08 cm); and

(iv) Be installed in a manner that does not reduce the ladder's structural capability.

(5) Ladder cages or wells shall:

(i) Be of rigid construction that allows unobstructed use but prevents an employee from falling through or dislodging the cage or well by falling against it;

(ii) Have smooth inner surfaces;

(iii) Extend at least 36 inches (0.9m) above landings; and

(iv) Extend to within 8 feet (2.4 m) above the ground or base, except that a maximum of 20 feet (6.1 m) is permitted where the cage or well would extend into traffic lanes.

(6) Ladders installed after (effective date of standard) on radio, microwave communications, electrical power and similar towers, poles and structures, including stacks and chimneys, shall meet the requirements of this paragraph (e).

(f) *Individual rung ladders.* Ladders consisting of individual rungs that are attached to walls, conical manhole sections or river cells shall:

(1) Be capable of supporting a load of 350 pounds (1557 N) without deformation;

(2) Form a continuous ladder, uniformly spaced vertically from 12 inches to 16 inches (30.5 to 41 cm) apart, with a minimum width of 10 inches (25.4 cm), and projecting at least 4½ inches (1 cm) from the wall;

(3) Be so constructed that an employee's foot cannot slide off the ends; and

(4) Be firmly attached and without sharp edges.

§ 1917.119 Portable ladders.

(a) *Scope and applicability.* This section applies to all portable ladders, including job-made ladders for temporary use, unless otherwise specified.

(b) *Standards for existing manufactured portable ladders.* (1) Rungs of manufactured portable ladders obtained before October 3, 1983 shall be capable of supporting a 200 pound (896 N) load without deformation.

(2) Rungs shall be evenly spaced from 9 to 16½ inches (22.9 to 41.9 cm), center to center.

(3) Rungs shall be continuous members between rails. Each rung of a double-rung ladder (two side rails and a center rail) shall extend the full width of the ladder.

(4) Width between side rails at the base of the ladder shall be at least 12 inches (30 cm) for ladders 10 feet (3.05 m) or less in overall length, and shall increase at least ¼ inch (0.6 cm) for each additional 2 feet (0.61 m) of ladder length.

(c) *Standards for manufactured portable ladders.* Portable manufactured ladders obtained after October 3, 1983 shall bear identification indicating that they meet the appropriate ladder construction requirements of the following standards:

ANSI A14.1-1981 Safety Requirements for Portable Wood Ladders
ANSI A14.2-1982 Safety Requirements for Portable Metal Ladders
ANSI A14.5-1981 Safety Requirements for Portable Reinforced Plastic Ladders

(d) *Standards for job-made portable ladders.* Job-made ladders shall:

(1) Have a minimum and uniform distance between rungs of 12 inches (30 cm), center to center;

(2) Are capable of supporting a 250 pound (1100 N) load without deformation; and

(3) Have a minimum width between side rails of 12 inches (30 cm) for ladders 10 feet (3.05 m) in height. Width between rails shall increase at least ¼ inch (0.6 cm) for each additional 2 feet (0.61 m) of ladder length.

(e) *Maintenance and inspection.* (1) The employer shall maintain portable ladders in safe condition. Ladders with the following defects shall not be used and either shall be tagged as unusable if kept on the premises or shall be removed from the worksite:

(i) Broken, split or missing rungs, cleats or steps;

(ii) Broken or split side rails;

(iii) Missing or loose bolts, rivets or fastenings;

(iv) Defective ropes; or

(v) Any other structural defect.

(2) Ladders shall be inspected for defects prior to each day's use, and after any occurrence, such as a fall, which could damage the ladder.

(f) *Ladder usage.* (1) Ladders made by fastening rungs or devices across a single rail are prohibited.

(2) Ladders shall not be used:

(i) As guys, braces or skids; or

(ii) As platforms, runways or scaffolds.

(3) Metal and wire-reinforced ladders with wooden side rails shall not be used when employees on the ladder might come into contact with energized electrical conductors.

(4) Individual sections from different multi-sectional ladders or two or more single straight ladder shall not be tied or fastened together to achieve additional length.

(5) Except for combination ladders, self-supporting ladders shall not be used as single straight ladders.

(6) Unless intended for cantilever operation, non-self-supporting ladders shall not be used to climb above the top support point.

(7) Ladders shall extend at least 36 inches (0.91 m) above the upper support level if employees are to leave or mount the ladder at that level, except that where such extension is impractical other equivalent means such as grab bars may be used to provide a hand grip.

(8) Ladders shall be securely positioned on a level and firm base.

(9) Ladders shall be fitted with slip-resistant bases and secured at top or bottom to prevent the ladder from slipping.

(10) The employer shall direct that ladders shall be placed so that employees climbing are not exposed to injury from projecting objects or doors that open toward the ladder.

§ 1917.120 Fixed stairways.

(a) *Definition.* "Fixed stairway" means interior and exterior stairs serving machinery, tanks and equipment, and stairs to or from floors, platforms or pits. The term does not apply to stairs intended only for fire exit purposes, to articulated stairs (the angle of which changes with the rise and fall of the base support) or to stairs forming an intergral part of machinery.

(b) *New installations.* (1) Fixed stairs installed after October 3, 1983 shall be positioned within the range of 30° to 50° to the horizontal with uniform riser height and tread width throughout each run and be capable of a minimum loading of 100 pounds per square foot (448 N) and a minimum concentrated load of 300 pounds (1344 N) at the center of any tread-span. Riser height shall be from 6 to 7.5 inches (15.2 to 19.0 cm), stair width a minimum of 22 inches (56 cm) between vertical barriers, tread depth a minimum of 12±2 inches (30.48±5.08 cm), and tread nosing shall be straight leading edges.

(2) Stair landings shall be at least 20 inches (51 cm) in depth. Where doors or gates open on a stairway, a landing platform shall be provided. Door swing shall not reduce effective standing area on the landing to less than 18 inches (45.7 cm) in depth.

(3) Fixed stairs having four or more risers shall have stair railings or handrails complying with § 1917.112(c)(1).

(4) Railing height from tread surface at the riser face shall be 33±3 inches (83±7.6 cm).

(5) Restricted areas. When physical features require stairs steeper than those provided for by paragraph (b)(1) of this section, stairs at angles of 50° to 75° from the horizontal may be used if they:

(i) Are capable of a single concentrated load of 200 pounds (890 N) at the tread centers;

(ii) Have open treads at least 4 inches (10.2 cm) in depth and 18 inches (45.7 cm) in width with a uniformly spaced vertical rise between treads of 6 to 9.5 inches (15.2 to 24.1 cm); and

(iii) Have handrails that meet the requirements of § 1917.112(c)(1) on both sides and that are not less than 30 inches (76.2 cm) in height from the tread surface at the riser face.

(6) Maintenance. Fixed stairways shall be maintained in safe condition and shall not be obstructed.

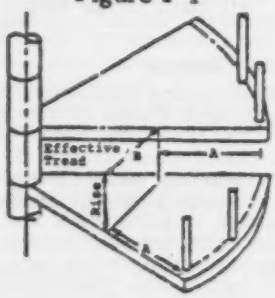
§ 1917.121 Spiral stairways.

(a) *Definition.* "Spiral stairway" means one with closed circular form, uniform sector-shaped treads and a supporting column.

(b) *Requirements.* Spiral stairways shall meet the following requirements:

(1) Stairways shall conform to the minimum dimensions of Figure F-1;

Figure F-1



SPIRAL STAIRWAY—MINIMUM DIMENSIONS

	A (Half-tread width)	B
Normal use by employees.	11 inches (27.9 cm).	6 inches (15.2 cm).
Limited access	9 inches (22.9 cm).	5 inches (12.7 cm).

(2) Stairway risers shall be uniform and shall range from 6½ to 10½ inches (16.5 to 26.7 cm) in height;

(3) Minimum loading capability shall be 100 pounds per square foot (448 N), and minimum tread center concentrated loading shall be 300 pounds (1344 N);

(4) Railings shall conform to the requirements of § 1917.112(c)(1). If balusters are used, there shall be a minimum of one per tread. Handrails shall be a minimum of 1¼ inches (3.3 cm) in outside diameter; and

(5) Vertical clearance shall be at least 6 feet, 6 inches (1.98 m) above the top step.

(c) *Maintenance.* Spiral stairways shall be maintained in safe condition.

§ 1917.122 Employee exits.

(a) Employee exits shall be clearly marked.

(b) If an employee exit is not visible from employees' work stations, direc-

tional signs indicating routes to the exit shall be posted.

(c) Exits shall be readily accessible and sufficient in number to provide employees with a convenient means of escape in emergencies. A clear passage to the exit shall be maintained.

(d) The minimum width of any employee exit shall be 28 inches (71.1 cm).

§ 1917.123 Illumination.[7]

(a) Working and walking areas shall be illuminated. Unless conditions described in the regulations of the United States Coast Guard (33 CFR 126.15(1) and (n), and 33 CFR 154.570) exist in the case of specific operations, illumination in active work areas (for example, cargo transfer points) shall be of an average minimum light intensity of 5 foot-candles. The illumination in other work areas (for example, farm areas) shall be of an average minimum light intensity of 1 foot-candle except for security purposes when a minimum light intensity of ½ foot-candle shall be maintained. Where occasional work tasks require more light than that which is consistently and permanently provided, supplemental lighting shall be used.

(b) The lighting intensity shall be measured at the task/working surface, in the plane in which the task/working surface is present.

(c) Lights shall, so far as possible, be placed so that they will not shine in the eyes of employees.

§ 1917.124 Passage between levels and across openings.

(a) *General.* The employer shall provide safe means of passage between different surface levels and across openings.

(b) *Definitions.* "Dockboards (car and bridge plates)" mean devices for spanning short distances between rail cars or highway vehicles and loading platforms which do not expose employees to falls greater than 4 feet (1.2 m).

"Ramps" mean other flat-surface devices for passage between levels and across openings not covered under "dockboards."

(c) *Dockboards (car and bridge plates).* (1) Dockboards shall be strong enough to support the loads imposed on them.

(2) Portable dockboards shall be anchored in position or be equipped with devices to prevent their movement.

(3) Hand holds or other effective means shall be provided on portable dockboards to permit safe handling.

(4) Positive means shall be used to prevent railcars or highway vehicles from being moved while dockboards or bridge plates are in position.

(d) *Ramps.* (1) Ramps shall be strong enough to support the loads imposed on them, provided with sideboards, properly secured and well maintained.

(2) Ramps shall be equipped with a guardrail meeting the requirement of § 1917.112(c)(1) if the slope is more than 20 degrees to the horizontal or if employees could fall more than 4 feet (1.2 m).

(3) Ramps shall have slip-resistant surfaces.

(4) When necessary to prevent displacement by vehicle wheels, steel plates or similar devices used to temporarily bridge or cover uneven surfaces or tracks, shall be anchored.

§ 1917.125 Guarding temporary hazards.

Ditches, pits, excavations and surfaces in poor repair shall be guarded by readily visible barricades, rails or other equally effective means.

§ 1917.126 River banks.

(a) This section applies to temporary installations or temporary operations near a river bank.

(b) Where working surfaces at river banks slope so steeply that an employee could slip or fall into the water, the employer shall ensure that the outer perimeter of the working surface is protected by posting or other portable protection such as roping off, and that employees wear a personal flotation device meeting the requirements of § 1917.95(c).

[7] The United States Coast Guard, at 33 CFR 126.15(1) and (n), and 33 CFR 154.570 sets out requirements for illumination at "designated waterfront facilities" and "large oil transfer facilities."

§ 1917.127 Sanitation.

(a) *Washing and toilet facilities.* (1) The employer shall provide accessible washing and toilet facilities sufficient for the sanitary requirements of employees. The facilities shall have:

(i) Running water, including hot and cold or tepid water at a minimum of one accessible location (when cargo handling is conducted at locations without permanent facilities, potable water may be provided in lieu of running water);

(ii) Soap;

(iii) Individual hand towels, clean individual sections of continuous toweling or warm air blowers; and

(iv) Fixed or portable toilets in separate compartments with latch-equipped doors. Separate toilet facilities shall be provided for male and female employees except when toilet rooms will be occupied by only one person at a time.

(2) Washing and toilet facilities shall be regularly cleaned and maintained in good order.

(b) *Drinking water.* (1) Potable drinking water shall be accessible to employees at all times.

(2) Potable drinking water containers shall be clean, containing only water and ice, and shall be fitted with covers.

(3) Common drinking cups are prohibited.

(c) *Prohibited eating areas.* Consumption of food or beverages in areas where hazardous materials are being stored or handled shall be prohibited.

(d) *Garbage and overboard discharges.* Work shall not be conducted in the immediate vicinity of uncovered garbage or in the way of overboard discharges from the vessel's sanitary lines unless employees are protected from the garbage or discharge by a baffle or splash boards.

§ 1917.128 Signs and marking.

(a) *General.* Signs required by this part shall be clearly worded and legible, and shall contain a key word or legend indicating the reason for the sign.

(1) Key words are such words as Danger, Warning, Caution.

(2) Legends are more specific explanations such as High Voltage, Close Clearance, Pedestrian Crossing.

(b) *Specific.* Every marine terminal shall have conspicuously posted signs as follows:

(1) Locations of first aid facilities;

(2) Locations of telephones;

(3) Telephone numbers of the closest ambulance service, hospital or other source of medical attention, police, fire department, and emergency squad (if any); and

(4) Locations of firefighting and emergency equipment and fire exits.

Subpart G—Related Terminal Operations and Equipment

§ 1917.151 Machine guarding.

(a) *Definition.* "Guarded" means shielded, fenced, or enclosed by covers, casings, shields, troughs, spillways or railings, or guarded by position or location. Examples of guarding methods are guarding by location (positioning hazards so they are inaccessible to employees) and point of operation guarding (using barrier guards, two-hand tripping devices, electronic safety devices, or other such devices).

(b) *General.* (1) Danger zones on machines and equipment used by employees shall be guarded.

(2) Where chips and dust produced by machine operation may result in a hazard to the operator, the machinery shall be equipped with an effective exhaust system at the point of origin, or other equally effective means shall be provided to protect the operator.

(3) Fixed machinery shall be secured to prevent shifting.

(4) A power cut-off device for machinery and equipment shall be provided at the operator's working position.

(5) Machines driven by belts and shafting shall be fitted with a belt-locking or equivalent protective device if the belt can be shifted.

(6) In operations where injury to the operator might result if motors were to restart after power failures, provisions shall be made to prevent machines from automatically restarting upon restoration of power.

(7) The power supply to machines shall be turned off, locked out, and tagged out during repair, adjustment, or servicing.

(8) Machines shall be maintained in a safe working condition.

(9) Only designated employees shall maintain or repair machinery and equipment.

(10) Machines with defects that affect the safety of operation shall not be used.

(c) *Hand-fed circular ripsaws and hand-fed circular crosscut table saws.* Unless fixed or manually adjustable enclosures or guarding provides equivalent protection, hand-fed circular ripsaws and hand-fed circular crosscut table saws shall be guarded as follows to keep employees clear of any danger zones:

(1) They shall be equipped with hoods completely enclosing those portions of the saw above the table and the material being cut;

(2) They shall have spreaders to prevent material from squeezing the saw. Spreaders shall be in true alignment with the saw. Spreaders may be removed only during grooving, dadoing, or rabbeting operations, and shall be replaced at the completion of such operations; and

(3) They shall have non-kickback fingers or dogs to oppose the tendency of the saw to pick up material or throw material toward the operator.

(d) *Swing cutoff saws.* (1) Swing cutoff saws shall have hoods completely enclosing the upper half of the saw, the arbor end and the point of operation at all saw positions to protect the operator from material thrown up by the saw. The hood shall automatically cover the lower portion of the blade, so that when the saw returns to the back of the table the hood rises on top of the fence, and when the saw is moved forward the hood drops on top, remaining in contact with the table or the material.

(2) Swing cutoff saws shall have a device to return the saw automatically to the back of the table without rebound. The device shall not be dependent upon rope, cord or springs.

(3) Devices shall be provided to prevent saws from swinging beyond the front or back edges of the table.

(4) Inverted swing cutoff saws shall have hoods covering the part of the saw protruding above the table top or the material being cut. Hoods shall automatically adjust to the thickness of, and remain in contact with, material being cut.

(e) *Radial saws.* Unless fixed or manually adjustable enclosures or guards provide equivalent protection, radial saws shall be guarded as follows:

(1) The upper hood of radial saws shall enclose the upper portion of the blade up to and including the end of the saw arbor and shall protect the operator from being struck by debris. The sides of the lower exposed portion of the blade shall be guarded to the blade diameter by a device automatically adjusting to the thickness of the stock and remaining in contact with the stock. The lower guard may be removed only when the saw is used for bevel cuts;

(2) Radial saws used for ripping shall have non-kickback fingers or dogs on both sides to oppose the thrust or tendency of the saw to pick up material or throw material toward the operator;

(3) Adjustable stop shall be provided to prevent travel of radial saw blades beyond the table's edge;

(4) Radial saws shall be installed so that the cutting head returns to the starting position without rebound when released; and

(5) The employer shall direct that employees perform ripping and ploughing against the saw turning direction. Rotation direction and an indication of the end of the saw to be used shall be conspicuously marked on the hood.

(f) *Band saws and band resaws.* (1) Saw blades and band saw wheels shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table, to protect employees from point-of-operation hazards and flying debris.

(2) Band saws shall be equipped with brakes to stop the band saw wheel if the blade breaks.

(3) Band saws shall be equipped with a tension control device to keep the blade taut.

(g) *Abrasive wheels and machinery.* (1) Abrasive wheels shall be used only on machines having enclosure guards to restrain pieces of grinding wheels and to protect employees if the wheel breaks, except as provided in paragraphs (g)(2) and (g)(3) of this section. Where the operator must stand in front of the safety guard opening, the safety guard shall be adjustable or have an adjustable tongue or piece at the top of the opening. The safety guard or the tongue shall be adjusted so that they are always close to the periphery of the wheel. Guards shall be aligned with the wheel and the strength of fastenings shall be greater than the strength of the guard.

(2) When the work provides equivalent protection, or when the machine is designed as a portable saw, guards may be constructed with the spindle end, nut and outer flange exposed. When the work entirely covers the side of the wheel, the side covers of the guard may be removed.

(3) Guarding is not required:

(i) For wheels used for internal work while the wheel is contained within the work being ground; or

(ii) For mounted wheels 2 inches (5 cm) and smaller in diameter used in portable operations.

(4) Work rests shall be used on fixed grinding machines. Work rests shall be rigidly constructed and adjustable for wheel wear. They shall be adjusted closely to the wheel with a maximum opening of ⅛-inch (3.2 mm) and shall be securely clamped. Adjustment shall not be made while the wheel is in motion.

(5) Grinding wheels shall fit freely on the spindle. The spindle nut shall be tightened only enough to hold the wheel in place.

(6) Grinding machine wheels shall turn at a speed that is compatible with the rated speed of the wheel.

(7) Flanges and blotters shall be used only with wheels designed for their use. Flanges shall be of a type ensuring retention of pieces of the wheel in case of breakage.

(8) Abrasive wheels with operational defects shall not be used.

(h) *Rotating parts, drives and connections.* (1) Rotating parts, such as gears and pulleys, that are located 7 feet (2.1 m) or less above working surfaces shall be guarded to prevent employee contact with moving parts.

(2) Belt, rope and chain drives shall be guarded to prevent employees from coming into contact with moving parts.

(3) Gears, sprockets and chains shall be guarded to prevent employees from coming into contact with moving parts. This requirement does not apply to manually operated sprockets.

§1917.152 Welding, cutting and heating (hot work).[8]

(a) *Definition.* "Hot work" means riveting, welding, flame cutting or other fire or spark-producing operation.

(b) *Hot work in confined spaces.* Hot work shall not be performed in a confined space until a designated person has tested the atmosphere and determined that it is not hazardous.

(c) *Fire protection.* (1) To the extent possible, hot work shall be performed in designated locations that are free of fire hazards.

(2) When hot work must be performed in a location that is not free of fire hazards, all necessary precautions shall be taken to confine heat, sparks, and slag so that they cannot contact flammable or combustible material.

(3) Fire extinguishing equipment suitable for the location shall be immediately available and shall be maintained in readiness for use at all times.

(4) When the hot work operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire during hot work and for a sufficient time after completion of the work to ensure that no fire hazard remains. The employer shall instruct all employees involved in hot work operations as to potential fire hazards and the use of firefighting equipment.

(5) Drums and containers which contain or have contained flammable or combustible liquids shall be kept

[8]The United States Coast Guard, at 33 CFR 126.15(c), requires prior permission of the Captain of the Port if welding or other hot work is to be carried out at a facility where dangerous cargoes as defined by 33 CFR 126.07 are located or being handled.

closed. Empty containers shall be removed from the hot work area.

(6) When openings or cracks in flooring cannot be closed, precautions shall be taken to ensure that no employees or flammable or combustible materials on the floor below are exposed to sparks dropping through the floor. Similar precautions shall be taken regarding cracks or holes in walls, open doorways and open or broken windows.

(7) Hot work shall not be performed:

(i) In flammable or potentially flammable atmospheres;

(ii) On or in equipment or tanks that have contained flammable gas or liquid or combustible liquid or dust-producing material, until a designated person has tested the atmosphere inside the equipment or tanks and determined that it is not hazardous; or

(iii) Near any area in which exposed readily ignitable materials such as bulk sulphur, baled paper or cotton are stored. Bulk sulphur is excluded from this prohibition if suitable precautions are followed, the person in charge is knowledgeable and the person performing the work has been instructed in preventing and extinguishing sulphur fires.

(8)(i) Drums, containers or hollow structures that have contained flammable or combustible substances shall either be filled with water or cleaned, and shall then be ventilated. A designated person shall test the atmosphere and determine that it is not hazardous before hot work is performed on or in such structures.

(ii) Before heat is applied to a drum, container or hollow structure, an opening to release built-up pressure during heat application shall be provided.

(d) *Gas welding and cutting.* (1) Compressed gas cylinders:

(i) Shall have valve protection caps in place except when in use, hooked up or secured for movement. Oil shall not be used to lubricate caps;

(ii) Shall be hoisted only while secured, as on a cradle or pallet, and shall not be hoisted by magnet, choker sling or cylinder caps;

(iii) Shall be moved only by tilting or rolling on their bottom edges;

(iv) Shall be secured when moved by vehicle;

(v) Shall be secured while in use;

(vi) Shall have valves closed when cylinders are empty, being moved or stored;

(vii) Shall be secured upright except when hoisted or carried;

(viii) Shall not be freed when frozen by prying the valves or caps with bars or by hitting the valve with a tool;

(ix) Shall not be thawed by boiling water;

(x) Shall not be exposed to sparks, hot slag, or flame;

(xi) Shall not be permitted to become part of electrical circuits or have electrodes struck against them to strike arcs;

(xii) Shall not be used as rollers or supports;

(xiii) Shall not have contents used for purposes not authorized by the supplier;

(xiv) Shall not be used if damaged or defective;

(xv) Shall not have gases mixed within, except by gas suppliers;

(xvi) Shall be stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of 20 feet (6 m) or a barrier having a fire-resistance rating of 30 minutes; and

(xvii) Shall not have objects that might either damage the safety device or obstruct the valve placed on top of the cylinder when in use.

(2) Use of fuel gas. Fuel gas shall be used only as follows:

(i) Before regulators are connected to cylinder valves, the valves shall be opened slightly (cracked) and closed immediately to clear away dust or dirt. Valves shall not be cracked if gas could reach possible sources of ignition;

(ii) Cylinder valves shall be opened slowly to prevent regulator damage and shall not be opened more than 1½ turns. Any special wrench required for emergency closing shall be positioned on the valve stem during cylinder use. For manifolded or coupled cylinders, at least one wrench shall be immediately available. Nothing shall be placed on top of a cylinder or associated parts when the cylinder is in use.

(iii) Pressure-reducing regulators shall be attached to cylinder valves when cylinders are supplying torches or devices equipped with shut-off valves;

(iv) Cylinder valves shall be closed and gas released from the regulator or manifold before regulators are removed;

(v) Leaking fuel gas cylinder valves shall be closed and the gland nut tightened. If the leak continues, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous. If a regulator attached to a valve stops a leak, the cylinder need not be removed from the workplace but shall be tagged and may not be used again before it is repaired; and

(vi) If a plug or safety device leaks, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous.

(3) Hose. (i) Fuel gas and oxygen hoses shall be easily distinguishable from each other by color or sense of touch. Oxygen and fuel hoses shall not be interchangeable. Hoses having more than one gas passage shall not be used.

(ii) When oxygen and fuel gas hoses are taped together, not more than four (4) of each 12 inches (10.2 cm of each 30.5 cm) shall be taped.

(iii) Hose shall be inspected before use. Hose subjected to flashback or showing evidence of severe wear or damage shall be tested to twice the normal working pressure but not less than 200 p.s.i. (1378.96 kPa) before reuse. Defective hose shall not be used.

(iv) Hose couplings shall not unlock or disconnect without rotary motion.

(v) Hose connections shall be clamped or securely fastened to withstand twice the normal working pressure but not less than 300 p.s.i. (2068.4 kPa) without leaking.

(vi) Gas hose storage boxes shall be ventilated.

(4) Torches. (i) Torch tip openings shall only be cleaned with devices designed for that purpose.

(ii) Torches shall be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches with such defects shall not be used.

(iii) Torches shall not be lighted from matches, cigarette lighters, other flames or hot work.

(5) Pressure regulators. Pressure regulators, including associated gauges, shall be maintained in safe working order.

(6) Operational precaution. Gas welding equipment shall be maintained free of oil and grease.

(e) *Arc welding and cutting.* (1) Manual electrode holders. (i) The employer shall ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting shall be used.

(ii) Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder shall be insulated against the maximum voltage to ground.

(2) Welding cables and connectors. (i) Arc welding and cutting cables shall be insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.

(ii) Only cable free from repair or splice for 10 feet (3 m) from the electrode holder shall be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

(iii) When a cable other than the lead mentioned in paragraph (e)(2)(ii) of this section wears and exposes bare conductors, the portion exposed shall not be used until it is protected by insulation equivalent in performance capacity to the original.

(iv) Insulated connectors of equivalent capacity shall be used for connecting or splicing cable. Cable lugs, where used as connectors, shall provide electrical contact. Exposed metal parts shall be insulated.

(3) Ground returns and machine grounding. (i) Ground return cables shall have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.

(ii) Structures or pipelines, other than those containing gases or flam-

mable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.

(iii) Structures or pipelines forming a temporary ground return circuit shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.

(iv) Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

(v) Arc welding and cutting machine frames shall be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(vi) Ground connections shall be mechanically and electrically adequate to carry the current.

(4) When electrode holders are left unattended, electrodes shall be removed and holders placed to prevent employee injury.

(5) Hot electrode holders shall not be dipped in water.

(6) The employer shall ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch shall be kept in the off position.

(7) Arc welding or cutting equipment having a functional defect shall not be used.

(8)(i) Arc welding and cutting operations shall be separated from other operations by shields, screens, or curtains to protect employees in the vicinity from the direct rays and sparks of the arc.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with paragraph (h) of this section. When welders are exposed to their own arc or to each other's arc, they shall wear filter lenses complying with the requirements of paragraph (h) of this section.

(9) The control apparatus of arc welding machines shall be enclosed, except for operating wheels, levers, and handles.

(10) Input power terminals, top change devices and live metal parts connected to input circuits shall be enclosed and accessible only by means of insulated tools.

(11) When arc welding is performed in wet or high-humidity conditions, employees shall use additional protection, such as rubber pads or boots, against electric shock.

(f) *Ventilation and employee protection in welding, cutting and heating.*— (1) *Mechanical ventilation requirements.* The employer shall ensure that general mechanical ventilation or local exhaust systems shall meet the following requirements:

(i) General mechanical ventilation shall maintain vapors, fumes and smoke below a hazardous level.

(ii) Local exhaust ventilation shall consist of movable hoods positioned close to the work and shall be of such capacity and arrangement as to keep breathing zone concentrations below hazardous levels.

(iii) Exhausts from working spaces shall be discharged into the open air, clear of intake air sources;

(iv) Replacement air shall be clean and respirable; and

(v) Oxygen shall not be used for ventilation, cooling or cleaning clothing or work areas.

(2) *Hot work in confined spaces.* Except as specified in paragraphs (f)(3)(ii) and (f)(3)(iii) of this section, when hot work is performed in a confined space the employer shall ensure that:

(i) General mechanical or local exhaust ventilations shall be provided; or

(ii) Employees in the space shall wear supplied air respirators in accordance with § 1910.134 and a standby on the outside shall maintain communication with employees inside the space and shall be equipped and prepared to provide emergency aid.

(3) *Welding, cutting or heating of toxic metals.* (i) In confined or enclosed spaces, hot work involving the following metals shall only be performed with general mechanical or local exhaust ventilation that ensures

that employees are not exposed to hazardous levels of fumes:

(A) Lead base metals;

(B) Cadmium-bearing filler materials; and

(C) Chromium-bearing metals or metals coated with chromium-bearing materials.

(ii) In confined or enclosed spaces, hot work involving the following metals shall only be performed with local exhaust ventilation meeting the requirements of paragraph (f)(1) of this section or by employees wearing supplied air respirators in accordance with § 1910.134;

(A) Zinc-bearing base or filler metals or metals coated with zinc-bearing materials;

(B) Metals containing lead other than as an impurity, or coated with lead-bearing materials;

(C) Cadmium-bearing or cadmium-coated base metals; and

(D) Metals coated with mercury-bearing materials.

(iii) Employees performing hot work in confined or enclosed spaces involving beryllium-containing base or filler metals shall be protected by local exhaust ventilation and wear supplied air respirators or self-contained breathing apparatus, in accordance with the requirements of § 1910.134.

(iv) The employer shall ensure that employees performing hot work in the open air that involves any of the metals listed in paragraphs (f)(3)(i) and (f)(3)(ii) of this section shall be protected by respirators in accordance with the requirements of § 1910.134, and those working on beryllium-containing base or filler metals shall be protected by supplied air respirators, in accordance with the requirements of § 1910.134.

(v) Any employee exposed to the same atmosphere as the welder or burner shall be protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.

(4) *Inert-gas metal-arc welding.* Employees shall not engage in and shall not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(i) Chlorinated solvents shall not be used within 200 feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with the requirements of paragraph (h) of this section. When welders are exposed to their own arc or to each other's arc, filter lenses complying with the requirements of paragraph (h) of this section shall be worn to protect against flashes and radiant energy.

(iii) Employees exposed to radiation shall have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields shall not have leaks, openings or highly reflective surfaces.

(iv) Inert-gas metal-arc welding on stainless steel shall not be performed unless exposed employees are protected either by local exhaust ventilation or by wearing supplied air respirators.

(g) *Welding, cutting and heating on preservative coatings.* (1) Before hot work is commenced on surfaces covered by a preservative coating of unknown flammability, a test shall be made by a designated person to determine the coating's flammability. Preservative coatings shall be considered highly flammable when scrapings burn with extreme rapidity.

(2) Appropriate precaution shall be taken to prevent ignition of highly flammable hardened preservative coatings. Highly flammable coatings shall be stripped from the area to be heated. An uncoiled fire hose with fog nozzle, under pressure, shall be immediately available in the hot work area.

(3) Surfaces covered with preservative coatings shall be stripped for at least 4 inches (10.2 cm) from the area of heat application or employees shall be protected by supplied air respirators in accordance with the requirements of § 1910.134.

(h) *Protection against radiant energy.* (1) Employees shall be protected from radiant energy eye hazards by spectacles, cup goggles, helmets, hand shields or face shields with filter lenses complying with the requirements of this paragraph.

(2) Filter lenses shall have an appropriate shade number, as indicated in Table G-1, for the work performed. Variations of one or two shade numbers are permissible to suit individual preferences.

(3) If filter lenses are used in goggles worn under the helmet, the shade numbers of both lenses equals the value shown in Table G-1 for the operation.

TABLE G-1—FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

Operation	Shade No.
Soldering	2.
Torch Brazing	3 or 4.
Light cutting, up to 1 inch	3 or 4.
Medium cutting, 1–6 inches	4 or 5.
Heavy cutting, over 6 inches	5 or 6.
Light gas welding, up to ½ inch.	4 or 5.
Medium gas welding, ½–½ inch.	5 or 6.
Heavy gas welding, over ½ inch.	6 or 8.
Shielded Metal-Arc Welding 1/16 to 5/32-inch electrodes.	10
Inert-gas Metal-Arc Welding (Non-ferrous) 1/16- to 5/32-inch electrodes.	11.
Shielded Metal-Arc Welding:	
3/16- to ¼-inch electrodes	12.
5/16- and ⅜-inch electrodes	14.

§ 1917.153 Spray painting.

(a) *Scope.* This section covers painting operations connected with maintenance of structures, equipment and gear at the marine terminal and of transient equipment serviced at the terminal. It does not apply to overall painting of terminal structures under construction, major repair or rebuilding of terminal structures, or portable spraying apparatus not used regularly in the same location.

(b) *Definitions.* (1) "Spraying area" means any area where flammable vapors, mists or combustible residues, dusts or deposits may be present due to paint spraying operations.

(2) "Spray booth" means an enclosure containing a flammable or combustible spraying operation and confining and limiting the escape of paint, vapor and residue by means of a powered exhaust system.

(3) "Approved" means, for the purpose of this section, that the equipment has been approved for the specified use by a nationally recognized testing laboratory.

(c) *Spray painting requirements for indoor and outdoor spraying areas and booths.* (1) Shut-off valves, containers or piping with attached hoses or flexible connections shall have shut-off valves closed at the connection when not in use.

(2) Pumps used to transfer paint supplies shall have automatic pressure-relieving devices.

(3) Hoses and couplings shall be inspected before use. Hoses showing deterioration, leakage or weakness in the carcass or at the couplings shall be removed from service.

(4)(i) No open flame or spark-producing equipment shall be within 20 feet (6 m) of a spraying area unless it is separated from the spraying area by a fire-retardant partition.

(ii) Hot surfaces shall not be located in spraying areas.

(iii) Whenever combustible residues may accumulate on electrical installations, wiring shall be in rigid conduit or in boxes containing no taps, splices or connections.

(iv) Portable electric lights shall not be used during spraying operations. Lights used during cleaning or repairing operations shall be approved for the location in which they are used.

(5) When flammable or combustible liquids are being transferred between containers, both containers shall be bonded and grounded.

(6)(i) Spraying shall be performed only in designated spray booths or spraying areas.

(ii) Spraying areas shall be kept as free from combustible residue accumulations as practicable.

(iii) Residue scrapings, debris, rags, and waste shall be removed from the spraying area as they accumulate.

(7) Spraying with organic peroxides and other dual-component coatings shall only be conducted in sprinkler-equipped spray booths.

(8) Only the quantity of flammable or combustible liquids required for the operation shall be allowed in the spraying area, and in no case shall the amount exceed a one-day supply.

(9) Smoking shall be prohibited and "No Smoking" signs shall be posted in spraying and paint storage areas.

(d) *Additional requirements for spraying areas and spray booths.* (1) Distribution or baffle plates shall be of noncombustible material and shall be removable or accessible for cleaning. They shall not be located in exhaust ducts.

(2) Any discarded filter shall be removed from the work area or placed in water.

(3) Filters shall not be used when the material being sprayed is highly susceptible to spontaneous heating and ignition.

(4) Filters shall be noncombustible or of an approved type. The same filter shall not be used when spraying with different coating materials if the combination of materials may spontaneously ignite.

(5) Spraying areas shall be mechanically ventilated for removal of flammable and combustible vapor and mist.

(6) Mechanical ventilation shall be in operation during spraying operations and long enough thereafter to exhaust hazardous vapor concentrations.

(7) Rotating fan elements shall be nonsparking or the casing shall consist of or be lined with nonsparking material.

(8) Piping systems conveying flammable or combustible liquids to the spraying booth or area shall be made of metal and be both bonded and grounded.

(9) Air exhausted from spray operations shall not contaminate makeup air or other ventilation intakes. Exhausted air shall not be recirculated unless it is first cleaned of any hazardous contaminants.

(10) Original closed containers, approved portable tanks, approved safety cans or a piping system shall be used to bring flammable or combustible liquids into spraying areas.

(11) If flammable or combustible liquids are supplied to spray nozzles by positive displacement pumps, the pump discharge line shall have a relief valve discharging either to a pump section or detached location, or the line shall be equipped with a device to stop the prime mover when discharge pressure exceeds the system's safe operating pressure.

(12) Wiring, motors and equipment in a spray booth shall be of approved explosion-proof type for Class I, Group D locations and conform to Subpart S of Part 1910 of this chapter for Class I, Division 1, Hazardous Locations. Wiring, motors and equipment within 20 feet (6m) of any interior spraying area and not separated by vapor-tight partitions shall not produce sparks during operation and shall conform to the requirements of Subpart S of Part 1910 of this chapter for Class I, Division 2, Hazardous Locations.

(13) Outside electrical lights within 10 feet (3m) of spraying areas and not separated from the areas by partitions shall be enclosed and protected from damage.

(e) *Additional requirements for spray booths.* (1) Spray booths shall be substantially constructed of noncombustible material and have smooth interior surfaces. Spray booth floors shall be covered with noncombustible material. As an aid to cleaning, paper may be used to cover the floor during painting operations if it is removed after the painting is completed.

(2) Spray booths shall be separated from other operations by at least 3 feet (0.91m) or by fire-retardant partitions or walls.

(3) A space of at least 3 feet (0.91m) on all sides of the spray booth shall be maintained free of storage or combustible materials.

(4) Metal parts of spray booths, exhaust ducts, piping and airless high-pressure spray guns and conductive objects being sprayed shall be grounded.

(5) Electric motors driving exhaust fans shall not be located inside booths or ducts.

(6) Belts shall not enter ducts or booths unless the belts are completely enclosed.

(7) Exhaust ducts shall be made of steel, shall have sufficient access doors to permit cleaning, and shall have a minimum clearance of 18 inches (0.46m) from combustible materials. Any installed dampers shall be fully

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opened when the ventilating system is operating.

(8) Spray booths shall not be alternately used to spray different types of coating materials if the combination of the materials may spontaneously ignite unless deposits of the first material are removed from the booth and from exhaust ducts before spraying of the second material begins.

§ 1917.154 Compressed air.

Employees shall be protected by chip guarding and personal protective equipment complying with the provisions of Subpart E of this part during cleaning with compressed air. Compressed air used for cleaning shall not exceed a pressure of 30 psi. Compressed air shall not be used to clean employees.

§ 1917.155 Air receivers.

(a) *Application.* This section applies to compressed air receivers and equipment used for operations such as cleaning, drilling, hoisting and chipping. It does not apply to equipment used to convey materials or in such transportation applications as railways, vehicles or cranes.

(b) *Gauges and valves.* (1) Air receivers shall be equipped with indicating pressure gauges and spring-loaded safety valves. Safety valves shall prevent receiver pressure from exceeding 110 percent of the maximum allowable working pressure.

(2) No other valves shall be placed between air receivers and their safety valves.

§ 1917.156 Fuel handling and storage.

(a) *Liquid fuel.* (1) Only designated persons shall conduct fueling operations.

(2) In case of spillage, filler caps shall be replaced and spillage disposed of before engines are started.

(3) Engines shall be stopped and operators shall not be on the equipment during refueling operations.

(4) Smoking and open flames shall be prohibited in areas used for fueling, fuel storage or enclosed storage of equipment containing fuel.

(5) Equipment shall be refueled only at designated locations.

(6) Liquid fuels not handled by pump shall be handled and transported only in portable containers or equivalent means designed for that purpose. Portable containers shall be metal, have tight closures with screw or spring covers and shall be equipped with spouts or other means to allow pouring without spilling. Leaking containers shall not be used.

(7) Flammable liquids may be dispensed in the open from a tank or from other vehicles equipped for delivering fuel to another vehicle only if:

(i) Dispensing hoses do not exceed 50 feet (15.2 m) in length; and

(ii) Any powered dispensing nozzles used are of the automatic-closing type.

(8) Liquid fuel dispensing devices shall be provided with an easily accessible and clearly identified shut-off device, such as a switch or circuit breaker, to shut off the power in an emergency.

(9) Liquid fuel dispensing devices, such as pumps, shall be mounted either on a concrete island or be otherwise protected against collision damage.

(b) *Liquefied gas fuels*—(1) *Fueling locations.* (i) Liquefied gas powered equipment shall be fueled only at designated locations.

(ii) Equipment with permanently mounted fuel containers shall be charged outdoors.

(iii) Equipment shall not be fueled or stored near underground entrances, elevator shafts or other places where gas or fumes might accumulate.

(2) *Fuel containers.* (i) When removable fuel containers are used, the escape of fuel when containers are exchanged shall be minimized by:

(A) Automatic quick-closing couplings (closing in both directions when uncoupled) in fuel lines; or

(B) Closing fuel container valves and allowing engines to run until residual fuel is exhausted.

(ii) Pressure-relief valve openings shall be in continuous contact with the vapor space (top) of the cylinder.

(iii) Fuel containers shall be secured to prevent their being jarred loose, slipping or rotating.

(iv) Containers shall be located to prevent damage to the container. If located within a compartment, that

ompartment shall be vented. Containrs near the engine or exhaust system hall be shielded against direct heat adiation.

(v) Container installation shall prode the container with at least the vehicle's road clearance under maximum pring deflection, which shall be to he bottom of the container or to the owest fitting on the container or ousing, whichever is lower.

(vi) Valves and connections shall be rotected from contact damage. Permanent protection shall be provided or fittings on removable containers.

(vii) Defective containers shall be reoved from service.

(3) *Fueling operations.* (i) To the xtent applicable, fueling operations or liquefied gas fuels shall also omply with paragraph (a) of this section.

(ii) Using matches or flames to check or leaks is prohibited.

(iii) Containers shall be examined efore recharging and again before euse for the following:

(A) Dents, scrapes and gouges of ressure vessels;

(B) Damage to valves and liquid evel gauges;

(C) Debris in relief valves;

(D) Leakage at valves or connection; nd

(E) Deterioration or loss of flexible eals in filling or servicing connections.

(4) *Fuel storage.* (i) Stored fuel containers shall be located to minimize xposure to excessive temperatures nd physical damage.

(ii) Containers shall not be stored ear exits, stairways or areas normally sed or intended for egress.

(iii) Outlet valves of containers in storage or transport shall be closed. Relief valves shall connect with vapor spaces.

(5) *Vehicle storage and servicing.* (i) Liquefied gas fueled vehicles may be stored or serviced inside garages or shops only if there are no fuel system leaks.

(ii) Liquefied gas fueled vehicles under repair shall have container shut-off valves closed unless engine operation is necessary for repairs.

(iii) Liquefied gas fueled vehicles shall not be parked near open flames, sources of ignition or unventilated open pits.

§ 1917.157 Battery charging and changing.

(a) Only designated persons shall change or charge batteries.

(b) Battery charging and changing shall be performed only in areas designated by the employer.

(c) Smoking and other ignition sources are prohibited in charging areas.

(d) Filler caps shall be in place when batteries are being moved.

(e) Parking brakes shall be applied before batteries are charged or changed.

(f) When a jumper battery is connected to a battery in a vehicle, the ground lead shall connect to ground away from the vehicle's battery. Ignition, lights and accessories on the vehicle shall be turned off before connections are made.

(g) Batteries shall be free of corrosion buildup and cap vent holes shall be open.

(h) Adequate ventilation shall be provided during charging.

(i) Facilities for flushing the eyes, body and work area with water shall be provided wherever electrolyte is handled, except that this requirement does not apply when employees are only checking battery electrolyte levels or adding water.

(j) Carboy tilters or siphons shall be used to handle electrolyte in large containers.

(k) Battery handling equipment which could contact battery terminals or cell connectors shall be insulated or otherwise protected.

(l) Metallic objects shall not be placed on uncovered batteries.

(m) When batteries are being charged, the vent caps shall be in place.

(n) Charges shall be turned off when leads are being connected or disconnected.

(o) Installed batteries shall be secured to avoid physical or electrical contact with compartment walls or components.

§ 1917.158 Prohibited operations.

(a) Spray painting and abrasive blasting operations shall not be conducted in the vicinity of cargo handling operations.

(b) Welding and burning operations shall not be conducted in the vicinity of cargo handling operations unless such hot work is part of the cargo operation.

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APPENDIX I—CARGO GEAR REGISTER AND CERTIFICATES

SUBJECT INDEX FOR 29 CFR 1918—LONGSHORING

AUTHORITY: Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable.

Section 1918.90 also issued under 5 U.S.C. 553 and 29 CFR Part 1911.

SOURCE: 39 FR 22074, June 19, 1974, unless otherwise noted.

Subpart A—General Provisions

§ 1918.1 Purpose and authority.

(a) The Longshoremen's and Harbor Workers' Compensation Act (44 Stat. 1424; 33 U.S.C. 901 et seq.) provides compensation for injuries suffered by employees when they are working for private employers within the Federal maritime jurisdiction on the navigable waters of the United States, including dry docks. Pub. L. 85-742, 72 Stat. 835, approved August 23, 1958, which amends section 41 of the Longshoremen's and Harbor Workers' Compensation Act, as amended (44 Stat. 1444; 33 U.S.C. 941) requires, among other things, that every employer of the aforementioned employees "shall install, furnish, maintain, and use such devices and safeguards with particular reference to equipment used by and working conditions established by such employers as the Secretary may determine by regulation or order to be reasonably necessary to protect the life, health, and safety of such employees, and to render safe such employment and places of employment, and to prevent injury to his employees." It is the purpose of the regulations of this part to carry out the intent of Pub. L. 85-742.

(b) Pursuant to Pub. L. 85-742 the regulations of this part do not make determinations with respect to matters under the control of the U.S. Coast Guard within the scope of Title 52 of the Revised Statutes and Acts supplementary or amendatory thereto (46 U.S.C. 1-1388, passim), including, but not restricted to, the master, ship's officers, crew members, design, construction and maintenance of the vessel, its gear and equipment; to matters within the regulatory authority of the U.S. Coast Guard to safeguard vessels, harbors, ports, and waterfront facilities under the provisions of the Espionage Act of June 15, 1917, as amended (40 Stat. 220; 50 U.S.C. 191 et seq.; 22 U.S.C. 401 et seq.) or to matters within the regulatory authority of the U.S. Coast Guard with respect to lights, warning devices, safety equipment and other matters relating to the promotion of safety of lives and property under section 4(e) of the Outer Continental Shelf Lands Act of August 7, 1953 (67 Stat. 462; 43 U.S.C. 1333).

§ 1918.2 Scope and responsibility.

(a) The responsibility for compliance with the regulations of this part is placed upon "employers" as defined in § 1918.3(c).

(b) It is not the intent of the regulations of this part to place additional responsibilities or duties on owners, operators, agents or masters of vessels unless such persons are acting as employers, nor is it the intent of these regulations to relieve such owners, operators, agents or masters of vessels from responsibilities or duties now placed upon them by law, regulation or custom.

§ 1918.3 Definitions.

(a) The term "shall" indicates provisions which are mandatory.

(b) The term "Secretary" means the Secretary of Labor.

(c) The term "employer" means an employer any of whose employees are employed, in whole or in part, in longshoring operations or related employments, as defined herein within the Federal maritime jurisdiction on the navigable waters of the United States.

(d) The term "employee" means any longshoreman, or other person engaged in longshoring operations or related employments, within the Federal maritime jurisdiction on the navigable waters of the United States, other than the master, ship's officers, crew of the vessel, or any person engaged

by the master to load or unload any vessel under 18 net tons.

(e) The term "vessel" includes every description of watercraft or other artificial contrivance used or capable of being used as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

(f) The term "public vessel" means a vessel owned and operated by a government and not regularly employed in merchant service.

(g) For the purposes of §§ 1918.11, 1918.23, 1918.35, 1918.37, 1918.43(f) (2), and 1918.106, the term "barge" means an unpowered, flat bottom, shallow draft vessel including river barges, scows, carfloats, and lighters. For the purposes of these sections the term does not include ship shaped or deep draft barges.

(h) For purposes of §§ 1918.11 and 1918.23, the term "river towboat" means a shallow draft, low freeboard, self propelled vessel designed to tow river barges by pushing ahead. For purposes of these sections the term does not include other towing vessels.

(i) The term "longshoring operations" means the loading, unloading, moving, or handling of cargo, ship's stores, gear, etc., into, in, on, or out of any vessel on the navigable waters of the United States.

(j) The term "related employments" means any employments performed as an incident to or in conjunction with longshoring operations including, but not restricted to, securing cargo, rigging, and employment as a porter, checker, or watchman.

(k) The term "gangway" means any ramp-like or stair-like means of access provided to enable personnel to board or leave a vessel, including accommodation ladders, gangplanks and brows.

(l) The term "bulling" means the horizontal dragging of cargo across a surface with none of the weight of the cargo supported by the fall.

(m) For the purpose of § 1918.12 the term "ship's cargo handling gear" includes that gear which is a permanent part of the vessel's equipment and which is used for the handling of cargo other than bulk liquids, but does not include gear which is used only for handling or holding hoses, handling ship's stores or handling the gangway, or boom conveyor belt systems for the self-unloading of bulk cargo vessels.

(n) For purposes of the regulations in this part the terms "beam" or "strongback" mean a portable transverse or longitudinal beam which is placed across a hatchway and acts as a bearer to support the hatch covers.

(o) For the purposes of §§ 1918.23(b) (2) and 1918.106(b) the term "Mississippi River System" includes the Mississippi River from the head of navigation to its mouth, and navigable tributaries including the Illinois Waterway, Missouri River, Ohio River, Tennessee River, Allegheny River, Cumberland River, Green River, Kanawha River, Monongahela River, and such others to which barge operations extend.

(p) For the purpose of § 1918.106(b) the term "Gulf Intracoastal Waterway" means the system of that name extending from St. Marks, Fla., to Brownsville and Harlingen, Tex., and including the Pearl River, Tombigbee River, Apalachicola River, Flint River, and such other navigable tributaries to which barge operations extend.

(q) The term "small trimming hatch" means a small hatch or opening, pierced in the 'tween-deck or other intermediate deck of a vessel and intended for the trimming of dry bulk cargoes. It does not refer to the large hatchways through which cargo is normally handled.

(r) For the purpose of § 1918.13 only—

(1) The term "crane" means a mechanical device intended for lifting or lowering a load and moving it horizontally, in which the hoisting mechanism is an integral part of the machine. A crane may be a fixed or mobile machine.

(2) The term "derrick" means a mechanical device intended for lifting, with or without a boom supported at its head by a topping lift from a mast, fixed A frame, or similar structure. The mast or equivalent member may or may not be supported by guys or braces. The boom, where fitted, may or may not be controlled in the horizontal plane by guys (vangs). The term shall include shear legs.

(3) The term "bulk cargo spout" means a spout, which may or may not be telescopic and may or may not have removable sections, but is suspended over the vessel from some overhead structure by wire rope or other means. Such a spout is often used with a thrower or trimming machine. A grain loading spout is an example of spouts covered by this definition.

(4) The term "bulk cargo sucker" means a pneumatic conveyor which utilizes a spout-like device, which may be adjustable vertically and/or laterally, and which is suspended over a vessel from some overhead structure by wire rope or other means. An example of an installation of this nature is the grain sucker used to discharge grain from barges.

(5) Unless otherwise specifically required, the terms defined in this paragraph shall not include, and the provisions of § 1918.13 shall not apply to, the following equipment:

(i) Small industrial crane trucks as described and illustrated in American National Standards Institute, B56.1, 1959, "Safety Code for Powered Industrial Trucks."

(ii) Huletts.

(iii) Bridge cranes including steeple towers and dock-leg elevators.

(iv) Ore and taconite loading facilities of such type that failure could not cause injury to an employee as defined in paragraph (d) of this section.

(v) Bulk coal loading facilities.

(vi) Vertical pocket conveyors such as banana, sugar, or other similar marine legs.

(s) The term "hazardous cargo" includes:

(1) Any packaged commodity in the "List of explosives and other dangerous articles and combustible liquids" of the "dangerous cargoes" regulations of the U.S. Coast Guard (46 CFR 146.04-5) requiring a label, without regard to the exemptions mentioned at the foot of the list;

(2) Any packaged commodity in the list identified in paragraph (s)(1) of this section, not requiring a label but classed as a combustible liquid;

(3) Any packaged liquid commodity in the list identified in paragraph (s)(1) of this section not requiring a label but classed as a hazardous article; or

(4) Any article not properly described by a name in that list but which is properly classified under the definition of those categories of dangerous articles given in 46 CFR 146.03-8 and is included in paragraph (s) (1), (2), or (3) of this section.

§§ 1918.4—1918.5 [Reserved]

§ 1918.6 Standards incorporated by reference.

(a) The standards listed below are hereby incorporated by reference in this part:

(1) American National Standard (USAS) Practice for Occupational and Educational Eye and Face Protection, Z87.1 (1968), American National Standards Institute, 1430 Broadway, New York, NY 10018. See Subpart J, § 1504.105(a).

(2) American National Standard Safety Requirements for Industrial Head Protection, Z89.1 (1969), American National Standards Institute, 1430 Broadway, New York, NY 10018. See Subpart J, § 1918.105(a).

(b) Standards which are legally incorporated by reference in this part have the same force and effect as other standards in this part. The locations where these standards may be examined are as follows:

(1) Occupational Safety and Health Administration, U.S. Department of Labor, Railway Labor Building, Washington, DC 20210.

(2) The Regional and Field Offices of the Occupational Safety and Health Administration which are listed in the U.S. Government Organizational Manual.

(c) Any changes in the standards which are incorporated by reference in this part and an official historic file of such changes are available at the offices referred to in paragraph (b) of this section. All questions as to the applicability of such changes should also be referred to these offices.

(d) Copies of the standards incorporated by reference in paragraph (a) of this section may be obtained from the American National Standards Institute at the address indicated therein.

§ 1918.7 [Reserved]

§ 1918.8 Amendment of this part.

The Secretary may at any time upon his own motion or upon written petition of any interested person setting forth reasonable grounds therefor, and after opportunity has been given to interested persons to present their views, amend or revoke any of the provisions of this part.

Subpart B—Gangways and Gear Certification

§ 1918.11 Gangways.[1]

The employer shall not permit employees to board or leave any vessel, except a barge or river towboat, until the following requirements have been met:

(a) Whenever practicable, a gangway of not less than 20 inches walking surface, of adequate strength, maintained in safe repair and safely secured shall be used. If a gangway is not practicable, a substantial straight ladder, extending at least 36 inches above the upper landing surface, and adequately secured against shifting or slipping shall be provided. When conditions are such that neither a gangway nor straight ladder can be used, a Jacob's ladder meeting the requirements of § 1918.22 may be used.

(b) Each side of such gangway, and the turntable, if used, shall have a railing with a minimum height of 33 inches measured perpendicularly from rail to walking surfaces at the stanchion, with a mid-rail. Rails shall be of wood, pipe, chain, wire or rope and shall be kept taut at all times. Portable stanchions supporting railings shall be so supported or secured as to prevent accidental dislodgment.

(c) Gangways on vessels inspected and certificated by the U.S. Coast Guard are deemed to meet the foregoing requirements, except in cases where the vessels' regular gangway is not being used.

[1] See also § 1918.21.

§ 1918.12 Gear certification.[2]

(a) The employer shall not use the vessel's cargo handling gear until he has ascertained that the vessel has a current and valid cargo gear register and certificates which in form and content are in substantial accordance with the recommendations of the International Labor Office, as set forth in Appendix I of this part, and as provided by International Labor Organization Convention No. 32, and which indicates that the cargo gear has been tested, examined and heat treated by or under the supervision of persons or organizations defined as competent to make register entries and issue certificates pursuant to paragraphs (c) and (d) of this section.

(b) Public vessels and vessels holding a valid Certificate of Inspection issued by the U.S. Coast Guard are deemed to meet the requirements of paragraph (a) of this section.

(c) With respect to U.S. vessels not holding a valid Certificate of Inspection issued by the U.S. Coast Guard, persons or organizations competent to make entries in the registers and issue the certificates required by paragraph (a) of this section shall be only those persons currently accredited by the Occupational Safety and Health Administration, U.S. Department of Labor, as provided in Part 1919 of this chapter.

(d) With respect to vessels under foreign registry, persons or organizations competent to make entries in the registers and issue the certificates required by paragraph (a) of this section shall be:

(1) Those acceptable as such to any foreign nation, (2) those acceptable to the Commandant of the U.S. Coast Guard, or (3) those currently accredited by the Occupational Safety and Health Administration, U.S. Department of Labor, as provided in Part 1919 of this chapter.

§ 1918.13 Certification of shore-based material handling devices.

(a) An employer shall not use in vessel-to-shore, shore-to-vessel, or in vessel-to-vessel cargo handling any

[2] See also § 1918.51.

crane, derrick, bulk cargo spout, or bulk cargo sucker, as defined in § 1918.3(r), which—

(1) Is not part of a vessel's permanent equipment and is either located ashore or placed aboard a vessel only temporarily; and

(2) Is used to transfer cargo or materials other than bulk liquids directly between the shore and a vessel or between vessels; and

(3) Is so located that its failure could cause injury to an employee, as defined in § 1918.3(d);

until he has ascertained that the device has been certificated as evidenced by current and valid documents attesting to compliance with the requirements specified in paragraph (b) of this section.

(b) The certification required by paragraph (a) of this section must have been performed—

(1) In accordance with the standards of Part 1919 of this chapter, by persons then currently accredited by the Occupational Safety and Health Administration as provided in Part 1919 of this chapter; or

(2) In accordance with standards established and enforced by the State in which the device is located, or by a political subdivision thereof, which have been found by the Assistant Secretary of Labor for Occupational Safety and Health Administration, U.S. Department of Labor, to be compatible with the standards of Part 1919 of this chapter, by persons designated as competent to perform such certification by competent state authority and recognized as such by the Assistant Secretary of Labor for Occupational Safety and Health Administration.

(c) Cranes and derricks shall have been tested as a unit, inspected and/or examined, at the intervals required by, and in accordance with applicable requirements set forth in, paragraph (b) of this section. Appropriate documentation, acceptable for the purpose, shall be available for inspection at the worksite.

(d) Bulk cargo spouts and suckers, together with any portable extensions and rigging or outriggers associated therewith which support them vertically, need not be tested, but shall be subject to an annual examination in accordance with applicable requirements as set forth in paragraph (b) of this section. Certificates attesting to the required examination and acceptable for the purpose shall be available for inspection.

(e) Disassembly and reassembly of equipment, which is necessary for movement from job to job, or which becomes necessary during the normal course of operations as a routine matter, does not nullify existing certification nor require additional certification functions to be carried out.

(f) Where equipment which is certificated in accordance with paragraph (b) of this section is transferred for use in another state, the then current and valid certification shall remain valid until the next survey becomes due.

(g) In the case of seasonal operations, initial certification required by this section may be deferred until the end of the current season. Subsequent annual and/or quadrennial requirements will then become applicable during normally idle periods.

(h) Certification procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year, which shall be carried out as usual by operating the maintenance personnel.

§ 1918.14 Container cranes.

The provisions of § 1918.13 requiring certification of certain shore-based material handling devices shall apply to any crane utilized to handle containers in containerized operations between the vessel and the shore.

§ 1918.15 Effective date of §§ 1918.13 and 1918.14.

Sections 1918.13 and 1918.14 shall become effective February 1, 1970.

Subpart C—Means of Access

§ 1918.21 Gangways and other means of access.

(a) The gangway shall be kept properly trimmed at all times.

(b) When a fixed tread accommodation ladder is used, and the angle is low enough to require employees to

walk on the edge of the treads, cleated duckboards shall be laid over and secured to the ladder.

(c) When the lower end of a gangway overhangs the water between the ship and the dock in such a manner that there is danger of employees falling between the ship and the dock, a net or other suitable protection shall be rigged at the foot of the gangway in such a manner as to prevent employees from falling from the end of the gangway.

(d) If the foot of the gangway is more than one foot away from the edge of the apron, the space between them shall be bridged by a firm walkway equipped with railings with a minimum height of approximately 33 inches with mid-rails on both sides.

(e) Supporting bridles shall be kept clear so as to permit unobstructed passage for employees using the gangway.

(f) When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps, properly secured and equipped with at least one substantial hand rail approximately 33 inches in height shall be provided between the top of the bulwark and the deck.

(g) Obstructions shall not be laid on or across the gangway.

(h) The means of access shall be adequately illuminated for its full length.

(i) Unless the construction of the vessel makes it impossible, the means of access shall be so located that drafts of cargo do not pass over it. In any event loads shall not be passed over the means of access while employees are on it.

§ 1918.22 Jacob's ladders.

(a) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

(b) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

§ 1918.23 Access to barges and river towboats.

(a) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

(b) Unless employees can step safe to or from the wharf, float, barge, river towboat, either a ramp meeti the requirements of paragraph (a) this section or a safe walkway meeti the requirements of § 1918.21(d) sh be provided. When a walkway is n practicable, a substantial straig ladder, extending at least 36 inch above the upper landing surface a adequately secured against shifting slipping shall be provided. When co ditions are such that neither a wal way nor a straight ladder can be use a Jacob's ladder meeting the requir ments of § 1918 22 may be used: *Pr vided, however,* That when these r quirements cannot reasonably be m by reason of local conditions, in r spect to barges operating on the Mi sissippi River System, other sa means of access shall be provided.

(c) When a barge, raft or log boom being worked alongside a larger vess a Jacob's ladder meeting the requir ments of § 1918.22 shall be provid for each gang working alongsi unless other safe means of access a provided.

(d) When longshoring operations a in progress on barges, the barges sh be securely made fast to the vess wharf, or dolphins.

§ 1918.24 Bridge plates and ramps.

(a) Bridge or car plates used aflo shall be of adequate strengt equipped with side boards along th space bridged, well maintained, and s cured against movement.

(b) Ramps for access of vehicles or between vessels shall be of adequat strength, provided with side board well maintained and properly secure

§ 1918.25 Ladders.

(a) There shall be at least one sa and accessible ladder for each gan working in a hatch. However, no mo than two such ladders are required i any hatch. An adequate means gaining a handhold shall be provide at or near the head of each vertic fixed ladder in cases where any co ming or other structural features a such that they cannot serve this pu pose.

(b) When any fixed ladder is visibly unsafe, the employer shall prohibit its use by employees.

(c) Straight ladders of adequate strength, of sufficient length to extend at least 36 inches above the coaming, and suitably secured against shifting or slipping, shall be provided as necessary when fixed hold ladders do not meet the requirements of paragraph (a) of this section, except that when conditions are such that a straight ladder cannot be used, Jacob's ladders meeting the requirements of § 1918.22 may be used.

(d) When 4 inches of clearance does not exist in back of ladder rungs, the ladder shall be deemed "unsafe" for the purpose of this section.

(e) When necessary to obtain access to or from a stowed deckload or other cargo and no other safe means is available, ladders or steps of adequate strength, and positively secured against shifting or slipping, shall be furnished. Where portable straight ladders are used they shall be of sufficient length to extend at least 36 inches above the upper landing surface. Adequate steps formed by the cargo itself are acceptable when the nature of the cargo and the type of stowage permits. This paragraph shall not apply to the circumstances covered by § 1918.54(f).

(f) Portable straight ladders used by employees for any purpose not otherwise specifically covered by this part shall be of adequate strength and lashed, blocked, or otherwise secured against shifting or slipping.

Subpart D—Working Surfaces

§ 1918.31 Hatch coverings.

(a) No cargo, dunnage, or other material shall be loaded or unloaded by means requiring the services of employees at any partially opened intermediate deck unless either the hatch at that deck is sufficiently covered or an adequate landing area suitable for the prevailing conditions exists: *Provided, however,* That in no event shall such work be done unless the working area available for such employees extends for a distance of 10 feet or more fore and aft and athwartships.

(b) Cargo shall not be landed on or handled over a covered hatch or 'tween-deck unless all beams are in place under the hatch covers.

(c) Missing, broken, split, or poorly fitting hatch covers that would jeopardize the safety of employees shall be reported at once to the officers in charge of the vessel. Pending replacement or repairs by the vessel, work shall not be performed in the section containing the unsafe covers or in adjacent sections unless the flooring is made safe.

(d) When the hatch covers the beams are not of uniform size, they shall be placed only in the hatch, deck, and section in which they fit properly.

(e) Small trimming hatches located in intermediate decks shall be adequately covered or guarded while work is proceeding in the hatch in which they are located, unless they are actually in use.

§ 1918.32 Stowed cargo and temporary landing platforms.

(a) Temporary tables on which loads are to be landed shall be of sufficient size and strength to permit the employees thereon to work in safety.

(b) When an edge of a hatch section or of stowed cargo more than 8 feet high is so exposed that it presents a danger of an employee falling, the edge shall be guarded by a safety net or adequate strength to prevent injury to a falling employee, or by other means providing equal protection under the existing circumstances.

(c) When two gangs are working in the same hatch on different levels, a safety net shall be rigged and securely fastened so as to prevent men or cargo from falling.

§ 1918.33 Deck loads.

(a) Employees shall not be permitted to pass fore and aft over or around deck loads unless there is a safe passage.

(b) Signalmen shall not be permitted to walk over deck loads from rail to coaming unless there is a safe passage. If it is necessary to stand at the outboard or inboard edge of the deckload where less than 24 inches of bulwark,

rail, coaming, or other protection exists, any signalman shall be provided with a suitable means of protection against falling from the deck load.

§ 1918.34 Skeleton decks.

No cargo shall be worked on a skeleton deck, mechano deck or other superstructure unless temporary flooring is provided, when necessary, to make a safe working surface.

§ 1918.35 Open hatches.

Open weather deck hatches around which longshoremen must work, which are not protected to a height of 24 inches by coamings, shall be guarded by taut lines at a height of 36 to 42 inches above the deck except on the side on which cargo is being worked. Any portable stanchions or uprights used shall be so supported or secured as to prevent accidental dislodgement; *Provided, however,* That the requirements of this section shall not be deemed to apply to barges or to Great Lakes type bulk carriers.

§ 1918.36 Weather deck rails.

Removable weather deck rails shall be kept in place except when cargo operations require them to be removed, in which case they shall be replaced as soon as such cargo operations are completed.

§ 1918.37 Barges.

(a) Employees shall not be permitted to walk along the sides of covered lighters or of barges with coamings more than 5 feet high unless there is a 3-foot clear walkway or a grab rail or taut handline is provided.

(b) Employees shall not be permitted to walk or work on the decks of barges to be loaded unless and until the walking or working surfaces have been determined by visual inspection to be sound structurally and maintained properly. If in the course of discharging a barge an unsound deck surface is discovered, work shall be discontinued and shall not be resumed until temporary means to ensure a safe work surface, or to avoid the unsound surface, shall have been taken.

§ 1918.38 Freshly oiled decks.

If decks are wet with fresh paint oil, the employer shall not permit em ployees to engage in longshoring ope ations until necessary walking ar working areas have been made safe b the use of suitable non-skid material

Subpart E—Opening and Closing Hatches

§ 1918.41 Coaming clearances.

(a) Weather deck: If a deck load o lumber or other smooth sided dec cargo over 5 feet high is stowed withi 3 feet of the hatch coaming and em ployees handling beams and hatc covers are not protected by at least 24-inch height of the coaming, a tau handline shall be provided along th side of the deckload for their protec tion. The requirements of § 1918.35(a are not intended to apply in this situa tion.

(b) Intermediate deck: (1) Before in termediate deck hatch covers an beams are removed or replaced by em ployees, there shall be a 3-foot work ing space between the stowed carg and the coaming at both sides and a one end of the hatches with athwart ship beams, and at both ends of those hatches with fore and aft beams except that a reasonable tolerance will be permitted in circumstances where adherence to a 3-foot working space would create undue hardship.

(2) The 3-foot clearance required by paragraph (b)(1) of this section is not required on the covered portion of a partially opened hatch, nor is it re quired when lower decks have been filled to beam height with cargo of such a nature as to provide a safe sur face upon which employees may work.

(3) For purposes of paragraph (b)(1) of this section, banana or other fitted gratings which are in good condition shall be considered a part of the deck ing when properly placed within the 3-foot area.

(c) Trunk hatches and other permanent or semi-permanent structures and spare parts: When bulkheads, lockers, reefer compartments or large spare parts are within 3 feet of the coaming, grab rails or taut handlines shall be provided for the protection of

employees handling beams and hatch covers.

(d) The provisions of this section regarding coaming clearances do not apply to hatches which are opened by hydraulic or other mechanical means, but in all cases in which the 3-foot clearance does not exist, means shall be taken to prevent stowed cargo which is likely to shift from falling into the hold.

§ 1918.42 Beam and pontoon bridles.

Beam and pontoon bridles shall not be used unless they meet the following requirements:

(a) Bridles shall be long enough to easily reach the holes, rings, or other lifting attachments on the beams and pontoons. The bridles shall be of adequate strength and properly maintained, including covering or blunting or protruding ends in wire rope splices.

(b) Bridles for lifting hatch beams shall be equipped with toggles, shackles, or hooks or other devices of such design that they cannot become accidentally dislodged from the beams with which they are used. Hooks other than those herein described may be used only when they are hooked into the standing part of the bridle. Toggles, when used, shall be at least 1 inch longer than twice the longest diameter of the holes into which they are placed.

(c) Bridles used for lifting pontoons and plugs shall have the number of legs required by the design of the pontoon or plug, and all legs shall be used. Where any use of a bridle requires fewer than the number of legs provided, idle legs shall be hung on the hook or ring, or otherwise prevented from swinging free.

(d) At least two legs of all strongback and pontoon bridles shall be equipped with a substantial fiber rope lanyard at least 8 feet long and in good condition. The bridle end of the lanyard may be of chain or wire.

§ 1918.43 Handling beams and covers.

Only paragraphs (f)(2), (h), and (i) of this section apply to folding, sliding, or hinged metal hatch covers or to those hatch covers handled by cranes carried for that purpose.

(a)(1) When hatch covers or pontoons are stowed on the weather deck abreast of hatches they shall be arranged in stable piles not closer than 3 feet from the hatch coaming and, when on the working side of the deck, not higher than the coaming, unless they are spread one high between coaming and rail with no space between them and with not less than a 24-inch height of hatch coaming maintained.

(2) When, in the case of pontoons, the requirements of paragraph (a)(1) of this section cannot be met due to the narrowness of the available deck area, pontoons may be stowed more than one high against the coaming, provided that not less than a 24-inch height of hatch coaming is maintained on the working side of the vessel. If pontoons must be stowed closer than 3 feet to and higher than the coaming on the idle side, they shall be secured against movement.

(3) When some, but not all, conventional small weather deck hatch boards or similar covers on seagoing vessels are removed from the beams in a section of a partially opened hatch during cargo handling, cleaning or other operations, those removed shall not be stowed on those left in place within that section.

(b) Beams shall be laid on their sides, or stood on edge close together and lashed: *Provided, however,* That this paragraph shall not apply in cases where beams are of such design that (1) the width of the flange is 50 percent or more of the height of the web and (2) that when a beam is stood upright the flange rests flat on the deck.

(c) Strongbacks, hatch covers and pontoons shall be so placed as not to interfere with a safe walkway from rail to hatch coaming or fore and aft, and so secured that they cannot be tipped over or dragged into hatches or overboard by drafts or gear. Dunnage or other suitable material shall be used under and between tiers of strongbacks and pontoons.

(d) Hatch covers unshipped in an intermediate deck shall be placed at least 3 feet from the coaming or they shall be removed to another deck. Strongbacks unshipped in an intermediate deck shall not be placed closer than 6 inches to the coaming, and if

placed closer than 3 feet, they shall be so secured that they cannot be tipped or dragged into a lower compartment. If this is not possible they shall be removed to another deck.

(e) Any beam or pontoon left in place adjacent to a section through which cargo, dunnage, equipment, or any other material is being worked, shall be lashed, locked, or otherwise secured so that it cannot be displaced by accident. All portable, manually handled hatch covers, including those bound together to make a larger cover, shall be removed from any working section.

(f)(1) The roller hatch beam at the edge of the open section of the hatch shall be lashed or pinned back so that it cannot be moved toward the open section.

(2) Rolling, sectional or telescopic hatch covers of barges which open in a fore and aft direction shall be secured against unintentional movement while in the open position.

(g) When a hatch is to be covered, hatch covers or night tents shall be used. Any partial hatch covering, such as alternate hatch covers or strips of dunnage, shall not be covered by a tarpaulin.

(h) Hinged or folding hatch covers normally stowed in an approximately vertical position shall be positively secured when in the upright position.

(i) Hatches shall not be opened or closed while employees are in the square of the hatch below.

Subpart F—Ship's Cargo Handling Gear

§ 1918.51 General requirements.[1]

(a) Neither the safe working load as specified in the cargo gear certification papers, nor any safe working load marked on the booms, shall be exceeded. Any limitations imposed by the certificating authority shall be adhered to.

(b) Any component of cargo handling gear, including tent gantlines and other associated rigging, which is visibly unsafe shall not be used until made safe.

(c) The following limitations shall apply to the use of wire rope as a part of the ship's cargo handling gear:

(1) An eye splice made in any wire rope shall have not less than three full tucks. However, this requirement shall not operate to preclude the use of another form of splice or connection which can be shown to be as efficient and which is not otherwise prohibited;

(2) Except for eye splices in the ends of wires, each wire rope used in hoisting or lowering, in guying derricks, or as a topping lift, preventer, segment of a multipart preventer, or pendant, shall consist of one continuous piece without knot or splice; and

(3) Wire rope shall not be used for the ship's cargo gear if, in any length of 8 diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires or if the rope shows other signs of excessive wear, corrosion or defect.

§ 1918.52 Specific requirements.

Gear which does not comply with the following requirements shall not be used:

(a) *Preventers.* (1) When preventers are used they shall be of sufficient strength for the intended purpose and secured to the head of the boom independent of working guys except when, in the case of cast fittings, the strength of the fitting exceeds the total strength of all lines secured to it. Any tails, fittings, or other means of making the preventers fast on deck shall provide strength equal to that of the preventer itself.

(2) Wire rope clips or knots shall not be used to form eyes in, or to join sections of, preventer guys.

(b) *Stoppers.* (1) When used, chain topping lift stoppers shall be in good condition, equipped with manila tails, and of a length to allow not fewer than three half-hitches in the chain.

(2) When used, chain stoppers shall be shackled or otherwise secured in such a manner that their links are not bent by being passed around fittings. The point of attachment shall be of sufficient strength and so located that the stoppers are reasonably in line with the normal topping lift lead at the time the stopper is applied.

[1] See also § 1918.12.

(3) When used, patent stoppers of the clamp type shall be suited to the size of the rope used. Clamps shall be in good condition and free of paint and dirt which would prevent their being drawn tight.

(c) *Falls.* (1) The end of the winch fall shall be secured to the drum by clamps, U-bolts, shackles, or some other equally strong method. Fiber rope fastenings shall not be used.

(2) Winch falls shall not be used with fewer than three turns on the winch drum.

(3) Eyes in the ends of wire rope cargo falls shall not be formed by knots and, in single part falls, shall not be formed by wire rope clips.

(4) When the design of the winch permits, the fall shall be so wound on the drum that the control mechanism moves in the same direction as the load.

(d) *Heel blocks.* (1) When employees are required to work in the bight formed by the heel block, a preventer of at least ¾-inch diameter wire rope, rove reasonably snug and adequately secured, shall be rigged, or equally effective means shall be taken to hold the block and fall in the event that the heel block attachments shall fail. Where physical limitations prohibit the fitting of a wire rope preventer of the required size or of other equally effective means, the maximum possible protection shall be provided.

(2) If the heel block is not so rigged as to prevent its falling when not under strain, it shall be secured to prevent alternate raising and dropping of the block: *Provided, however,* That this requirement shall not apply when the heel block is so located as to be at least 10 feet above the deck when at its lowest point.

(e) *Coaming rollers.* When used, portable coaming rollers, whether provided by the ship or by the employer, shall be secured by wire preventers in addition to the regular coaming clamps.

(f) *Cargo hooks.* Cargo hooks shall be as close to the junction of the falls as the assembly permits, but in no case farther than two feet from it, except that this provision shall not apply when the construction of the vessel and the operation in progress are such that fall angles in excess of 120 degrees do not normally occur. Overhaul chains shall not be shortened by bolting or knotting.

§ 1918.53 Cargo winches.

(a) *General.* (1) When moving parts of winches or other deck machinery present a hazard, they shall be guarded.

(2) Winches shall not be used if control levers operate with excessive friction or excessive play.

(3) Double gear winches or other winches equipped with a clutch shall not be used unless a positive means of locking the gear shift is provided.

(4) When changing gears on a two gear winch, there shall be no load other than the fall and cargo hook assembly on the winch.

(5) Any defect or malfunction of winches shall be reported immediately to the officer in charge of the vessel.

(6) Temporary seats and shelters for winch drivers which create a hazard to the winchmen or other employees shall not be used.

(7) Except for short handles on wheel type controls, winch drivers shall not be permitted to use winch control extension levers unless they are provided by either the ship or the employer. Such levers shall be of adequate strength and securely fastened with metal connections at the fulcrum and at the permanent control lever.

(b) *Steam winches.* (1) Means shall be taken to prevent escaping steam from obscuring any part of the decks or other work places or from otherwise hindering or injuring any employee.

(2) Access shall be maintained to the steam valve between each winch and the deck steam line. If this valve is not operative with normal hand pressure, the winch shall not be used.

(3) Extension control levers which tend to fall of their own weight shall be counterbalanced.

(4) When winches are left unattended, control levers shall be secured in the neutral position.

(c) *Electrical winches.* (1) When the electromagnetic or other service brake is unable to hold the load, the winch shall not be used.

(2) Winches shall not be used when one or more control points, either hoisting or lowering, is not operating properly. Employees shall not be permitted to tamper with or adjust electric control circuits.

(3) When winches are left unattended, control levers shall be placed in the neutral position and, whenever possible, the power shall be shut off or control levers locked at the winch or the operating controls.

§ 1918.54 Rigging gear.

(a) When alternate positions for securing guys are provided, the guys shall be so placed as to produce a minimum stress without permitting the boom to jackknife.

(b) The head of the midship boom shall be spotted no farther outboard of the coaming than is necessary for control of the load.

(c) Preventers: When preventers are used, the following shall apply:

(1) Preventers shall be properly secured to suitable fittings, other than those to which the guys are secured, and shall be as nearly parallel to the guys as available fittings permit.

(2) Unless the cleat is also a chock and the hauling part is led through the chock opening, the leads of preventers to cleats shall be such that the direction of the line pull of the preventer is as nearly as possible parallel to the plane of the surface on which the cleat is mounted.

(3) Guys and associated preventers shall be adjusted so as to share the load as nearly equally as practicable where cargo operations are being conducted by burtoning; *Provided, however,* That where guys are designed and intended for trimming purposes only and the preventer is intended to perform the function of the guy, the guy shall be left slack.

(d) Cargo falls under load shall not be permitted to chafe on any standing or other running rigging: *Provided, however,* That this shall not be construed to mean hatch coamings or other similar structural parts of the vessel.

(e)(1) Where a bull wire is taken to a gypsy head for the purpose of lowering or topping a boom, the bull wire shall be secured to the gypsy head by shackle or other equally strong method. Securing by fiber rope fastening will not be considered adequate.

(2) When, in lowering or topping a boom, it is not possible to secure the bull wire to the gypsy head, or when the topping lift itself is taken to the gypsy head, sufficient turns, in no case less than five (5), shall be used.

(f) When deck loads extend above the rail and there is less than 8 inches horizontal clearance between the edge of the deck load and the inside of the bulwark or rail, employees shall not be permitted to go overside unless adequate precautions are taken to prevent them from falling.

§ 1918.55 Cranes.

Unless permanently guarded, the accessible areas within the swing radius of the outermost part of the body of a revolving crane shall be temporarily guarded by ropes or other suitable means during cargo operations, so as to prevent an employee being in a position to be caught between the body of the crane and fixed parts of the vessel or of the crane itself.

Subpart G—Cargo Handling Gear and Equipment Other Than Ship's Gear

§ 1918.61 General.

(a) All gear and equipment provided by the employer shall be inspected by the employer or his authorized representative before each use and, when necessary, at intervals during its use, to ensure that it is safe. Any gear which is found upon such inspection to be visibly unsafe shall not be used until it is made safe.

(b) All special stevedoring gear provided by the employer, the strength of which depends upon components other than commonly used stock items such as shackles, ropes or chains, shall be tested as a unit in the following manner before initially being put into use:

(1) Gear intended to handle lifts up to and including 20 short tons (40,000 lbs.) shall be tested to 25 percent in excess of its safe working load.

(2) Gear intended to handle lifts over 20 short tons (40,000 lbs.) but not

xceeding 50 short tons (100,000 lbs.) hall be tested to 5 short tons (10,000 bs.) in excess of its safe working load.

(3) Gear intended to handle lifts ver 50 short tons (100,000 lbs.) shall e tested to 10 percent in excess of its afe working load.

(4) The employer shall maintain a ecord of the dates and results of the ests with each unit of gear concerned learly identifiable. The records shall e available for examination by repre-entatives of the Occupational Safety nd Health Administration.

(c) The safe working load of gear as pecified in §§ 1918.61 through 1918.66 hall not be exceeded.

(d) The weight shall be plainly arked on any article of stevedoring ear hoisted by ship's gear and weigh-ng in excess of 2,000 lbs.

1918.62 Fiber rope and fiber rope slings.

(a) Table G-1 shall be used to deter-nine the safe working load of various izes of manila rope and rope slings at various angles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than five (5) is maintained.

(b) Where synthetic fiber ropes are substituted for manila ropes of less than three (3) inches circumference, the substitute shall be of equal size. Where synthetic fiber ropes are substituted for manila ropes of three (3) inches circumference or more, the size of the synthetic rope is to be determined from the formula:

$$C = \sqrt{0.6C_s^2 + 0.4C_m^2}.$$

Where C = the required circumference of the synthetic rope in inches.

C_s = the circumference to the nearest one-quarter inch of a synthetic rope having a breaking strength not less than the breaking strength of the size manila rope that would be required by paragraph (a) of this section.

C_m = the circumference of manila rope in inches which would be required by paragraph (a) of this section.

TABLE G-1—MANILA ROPE

[In pounds or tons of 2,000 pounds]

Circumferences	Diameter in inches	Single leg	60° bridle	45° bridle	30° bridle
		lbs.	lbs.	lbs.	lbs.
	1/4	120	204	170	120
	9/32	200	346	282	200
1/4	5/16	270	467	380	270
5/16	11/32	350	605	493	350
3/8	13/32	450	775	635	450
3/8	1/2	530	915	798	530
7/16	9/16	690	1190	973	690
	5/8	880	1520	1240	880
1/2	3/4	1080	1870	1520	1080
9/16	13/16	1300	2250	1830	1300
5/8	7/8	1540	2660	2170	1540
	1	1800	3120	2540	1800
		Tons	Tons	Tons	Tons
3/4	1 1/16	1.0	1.7	1.4	1.0
7/8	1 1/8	1.2	2.1	1.7	1.2
7/8	1 1/4	1.35	2.3	1.9	1.35
	1 5/16	1.5	2.6	2.1	1.5
1	1 1/2	1.8	3.1	2.5	1.8
1	1 5/8	2.25	3.9	3.2	2.25
1 1/8	1 3/4	2.6	4.5	3.7	2.6
	2	3.1	5.4	4.4	3.1
1 1/4	2 1/4	3.6	6.2	5.1	3.6

In making such a substitution it should be ascertained that the inherent characteristics of the synthetic fiber are suitable for the intended service of the rope.

§ 1918.63 Wire rope and wire rope slings.

(a) Tables G-2 through G-5 shall be used to determine the safe working loads of various sizes and classifications of improved plow steel wire rope and wire rope slings with various types of terminals. For sizes, classifications and grades not included in these tab the safe working load recommend by the manufacturer for specific, id tifiable products shall be follow provided that a safety factor of less than five (5) is maintained.

TABLE G-2—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE COR WIRE ROPE AND WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope dia.	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
6 x 19 Classification						
¼"	.59	.56	.53	.44	.42	
⅜"	1.3	1.2	1.1	.98	.93	
½"	2.3	2.2	2.0	1.7	1.6	
⅝"	3.6	3.4	3.0	2.7	2.5	
¾"	5.1	4.9	4.2	3.8	3.6	
⅞"	6.9	6.6	5.5	5.2	4.9	
1"	9.0	8.5	7.2	6.7	6.4	
1⅛"	11	10	9.0	8.5	7.8	
6 x 37 Classification						
1¼"	13	12	10	9.9	9.2	
1⅜"	16	15	13	12	11	
1½"	19	17	15	14	13	
1¾"	26	24	20	19	18	
2"	33	30	26	25	23	
2¼"	41	38	33	31	29	

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G-3—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE COR WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope dia.	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
6 x 19 Classification												
¼"	1.2	1.1	1.0	1.0	.97	.92	.83	.79	.75	.59	.56	
⅜"	2.0	2.5	2.3	2.3	2.1	2.0	1.8	1.8	1.8	1.3	1.2	
½"	4.0	4.4	3.9	4.0	3.6	3.4	3.2	3.1	2.8	2.3	2.2	
⅝"	7.2	6.6	6.0	6.2	5.9	5.2	5.1	4.8	4.2	3.6	3.4	
¾"	10	9.7	8.4	8.9	8.4	7.3	7.2	6.9	5.9	5.1	4.9	
⅞"	14	13	11	12	11	9.6	9.8	9.3	7.8	6.9	6.6	
1"	18	17	14	15	15	12	13	12	10	9.0	8.5	
1⅛"	23	21	18	19	18	16	16	15	13	11	10	
6 x 37 Classification												
1¼"	26	24	21	23	21	18	19	17	15	13	12	
1⅜"	32	29	25	28	25	22	22	21	18	16	15	
1½"	38	35	30	33	30	26	27	25	21	19	17	
1¾"	51	47	41	44	41	35	36	33	29	26	24	
2"	66	61	53	57	53	46	47	43	37	33	30	

TABLE G-3—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE SLINGS—Continued

[In tons of 2,000 pounds]

Rope dia.	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
2½"	83	76	66	72	66	67	58	54	47	41	38	33

(A)—Socket or Swaged Terminal Attachment.
(B)—Mechanical Sleeve Attachment.
(C)—Hand Tucked Splice Attachment.

TABLE G-4—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE AND WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope dia.	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
6 x 19 Classification						
½"	.55	.51	.49	.41	.38	.37
⅝"	1.2	1.1	1.1	.91	.85	.80
¾"	2.1	2.0	1.8	1.6	1.5	1.4
⅞"	3.3	3.1	2.8	2.5	2.3	2.1
1"	4.8	4.4	3.9	3.6	3.3	2.9
1⅛"	6.4	5.9	5.1	4.8	4.5	3.9
1¼"	8.4	7.7	6.7	6.3	5.8	5.0
1⅜"	10	9.5	8.4	7.9	7.1	6.3
6 x 37 Classification						
1½"	12	11	9.3	9.2	8.3	7.4
1⅝"	15	13	12	11	10	8.9
1¾"	17	16	14	13	12	10
1⅞"	24	21	19	18	16	14
2"	31	28	25	23	21	18

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G-5—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope dia.	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
6 x 19 Classification												
½	1.1	1.0	.99	.95	.88	.85	.77	.72	.70	.55	.51	.49
⅝	2.4	2.2	2.1	2.1	1.9	1.8	1.7	1.6	1.5	1.2	1.1	1.1
¾	4.3	3.9	3.7	3.7	3.4	3.2	3.0	2.8	2.6	2.1	2.0	1.8
⅞	6.7	6.2	5.6	5.8	5.3	4.8	4.7	4.4	4.0	3.3	3.1	2.8
1	9.5	8.8	7.8	8.2	7.6	6.8	6.7	6.2	5.5	4.8	4.4	3.9
1⅛	13	12	10	11	10	8.9	9.1	8.4	7.3	6.4	5.9	5.1
1¼	17	15	13	14	13	11	12	11	9.4	8.4	7.7	6.7
1⅜	21	19	17	18	16	14	15	13	12	10	9.5	8.4
6 x 37 Classification												
1½	25	22	20	21	19	17	17	16	14	12	11	9.8

TABLE G-5—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS Continued

[In tons of 2,000 pounds]

Rope dia.	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
1⅝	30	27	24	26	23	20	21	19	17	15	13	
1⅛	35	32	28	30	27	24	25	22	20	17	16	
1⅞	46	43	39	41	37	33	34	30	27	24	21	
2	62	55	49	53	43	43	43	39	35	31	28	

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

(b) Protruding ends of strands in splices on slings and bridles shall be covered or blunted.

(c) Where "U" bolt wire rope clips are used to form eyes, Table G-6 shall be used to determine the number and spacing of clips. The "U" bolt shall be applied so that the "U" section is in contact with the dead end of the rope.

(d) Wire rope shall not be secured by knots, except on haul back lines on scrapers.

(e) The following limitations shall apply to the use of wire rope:

(1) An eye splice made in any wire rope shall have not less than three full tucks. However, this requirement shall not operate to preclude the use of another form of splice or connection which can be shown to be as efficient and which is not otherwise prohibited.

(2) Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in bulling cargo, shall consist of one continuous piece without knot or splice.

(3) Eyes in wire rope bridles, slings, or bull wires shall not be formed by wire rope clips or knots.

(4) Wire rope shall not be used as cargo handling gear if, in any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires or the rope shows other signs of excessi wear, corrosion or defect.

TABLE G-6—NUMBER AND SPACING OF U-BO WIRE ROPE CLIPS

Improved plow steel, rope diameter, inches	Number of clips		Minim spac (inch
	Drop forged	Other material	
⅜	3	4	
½	3	4	
¾	4	5	
⅞	4	5	
1	4	6	
1⅛	5	6	
1¼	5	7	
1⅜	6	7	
1½	6	8	

§ 1918.64 Chains and chain slings.

(a) Tables G-7 and G-8 shall be us to determine the maximum safe wo ing loads of various sizes of wroug iron and alloy steel chains and cha slings, except that higher safe worki loads are permissible when reco mended by the manufacturer for sp cific, identifiable products. Proof c steel chain, also known as common hardware chain, or other chain n recommended for slinging or hoisti by the manufacturer, shall not be us for hoisting purposes.

TABLE G-7—WROUGHT IRON CHAIN

[In pounds or tons of 2,000 pounds]

Nominal size chain block	Single leg	60° bridle	45° bridle	30° bridl
¼"*	1060	1835	1500	1
5/16"*	1655	2865	2340	1

TABLE G–7—WROUGHT IRON CHAIN—Continued

[In pounds or tons of 2,000 pounds]

Nominal size chain block	Single leg	60° bridle	45° bridle	30° bridle
5/16"	2385	2.1	33.70	2385
3/8"*	3250	2.8	2.3	3250
7/16"	2.1	3.7	3.0	2.1
1/2"*	2.7	4.6	3.8	2.7
9/16"	3.3	5.7	4.7	3.3
5/8"	4.8	8.3	6.7	4.8
3/4"	6.5	11.2	9.2	6.5
7/8"	8.5	14.7	12.0	8.5
1"	10.0	17.3	14.2	10.0
1 1/8"	12.4	21.3	17.5	12.4
1 1/4"	15.0	25.9	21.1	15.0
1 3/8"	17.8	3.06	25.2	17.8
1 1/2"	20.9	36.2	29.5	20.9
1 5/8"	24.2	42.0	34.3	24.2
1 3/4"	27.6	47.9	39.1	27.6
2"	31.6	54.8	44.8	31.6

*These sizes of wrought iron chain are no longer manufactured in the United States.

TABLE G–8—ALLOY STEEL CHAIN

[In tons of 2,000 pounds]

Nominal size chain stock	Single leg	60° bridle	45° bridle	30° bridle
1/4"	1.62	2.82	2.27	1.62
5/16"	3.30	5.70	4.65	3.30
3/8"	5.62	9.75	7.90	5.62
7/16"	8.25	14.25	11.65	8.25
1/2"	11.5	19.9	16.2	11.5
9/16"	14.3	24.9	20.3	14.3
5/8"	19.3	33.5	27.3	19.8
3/4"	22.2	38.5	31.5	22.2
7/8"	28.7	49.7	40.5	28.7
1"	33.5	58.0	47.0	33.5
1 1/8"	39.7	68.5	56.0	39.7
1 1/4"	42.5	73.5	59.5	42.5
1 3/8"	47.9	81.5	62.0	47.0

(b) All sling chains, including end fastenings, shall be given a visual inspection before being used on the job. A thorough inspection of all chains in use shall be made every 3 months. Each chain shall bear an indication of the month in which it was thoroughly inspected. The thorough inspection shall include inspection for wear, defective welds, deformation and increase in length or stretch.

(c) Interlink wear, not accompanied by stretch in excess of five (5) percent, shall be noted and the chain removed from service when maximum allowable wear at any point of link, as indicated in Table G–9, has been reached.

(d) Chain slings shall be removed from service when, due to stretch, the increase in length of a measured section exceeds five (5) percent; when a link is bent, twisted or otherwise damaged; or when raised scarfs or defective welds appear.

(e) All repairs to chains shall be made under qualified supervision. Links or portions of the chain found to be defective, as described in paragraph (d) of this section, shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be proof tested to the proof test load recommended by the manufacturer.

(f) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding 6 months when recommended by the manufacturer. The chain manufacturer shall be consulted for recommended proce-

dures for annealing or normalizing. Alloy chains shall not be annealed.

TABLE G-9—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size in inches	Maximum allowable wear in fraction of inches
¼ (9/32)	9/64
5/16	5/64
3/8	7/64
7/16	9/64
1/2	5/32
9/16	11/64
5/8	3/16
11/16	13/64
3/4	7/32
13/16	15/64
7/8	1/4
15/16	9/32
1	5/16
1 1/16	11/32
1 1/8	3/8
1 3/16	13/32
1 1/4	7/16
1 5/16	15/32
1 3/8	1/2

(g) A load shall not be lifted with a chain having a kink or knot in it. A chain shall not be shortened by bolting, wiring or knotting.

§ 1918.65 Shackles.

(a) Table G-10 shall be used to determine the safe working loads of various sizes of shackles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than five (5) is maintained.

TABLE G-10—SAFE WORKING LOADS FOR SHACKLES

[In tons of 2,000 pounds]

Material size (inches)	Pin diameter (inches)	Safe working load
¼	5/8	1.4
5/16	3/4	2.2
3/8	7/8	3.2
1/2	1	4.3
5/8	1 1/4	6.8
3/4	1 1/2	9.5
7/8	1 3/4	13.0
1	2	17.0
1 1/8	2 1/4	21.5
1 1/4	2 1/2	26.5
1 3/8	2 3/4	32.5
1 1/2	3	38.5
1 5/8	3 1/4	45.5
1 3/4	3 1/2	53.0
2	4	68.0
2 1/4	4 1/2	85.0
2 1/2	5	105.0
2 3/4	5 1/2	127.0
3	6	150.0
3 1/2	7	200.0
4	8	255.0

(b) Screw pin shackles provided by the employer and used aloft, except in cargo hook assemblies, shall have their pins moused.

§ 1918.66 Hooks other than hand ho

(a) The manufacturer's recom dations shall be followed in dete ing the safe working loads of the ous sizes and types of specifi identifiable hooks. All hooks for no applicable manufacturer's r mendations are available sha tested to twice the intended safe ing load before they are initiall into use. The employers shall tain a record of the dates and r of such tests.

(b) Loads shall be applied t throat of the hook since loadin point overstresses and bends or s the hook.

(c) Hooks shall be inspected pe cally to see that they have not bent by overloading. Bent or s hooks shall not be used.

(d) Teeth of case hooks shall b in good condition.

(e) Jaws of patent clamp type hooks shall be kept in safe con so that they will grip plates secur

§ 1918.67 Pallets.

(a) Pallets shall be of such ma and construction and so maintain to safely support and carry loads handled on them. Fastenings of able pallets shall be bolts and drive screws (helically threaded annular threaded nails or faste of equivalent strength.

(b) Wing or lip type pallets h by means of bar bridles shall ha overhanging wing or lip at le inches long.

(c) Loaded pallets which on examination do not meet the re ments of this section, shall be p on pallets meeting the require before being hoisted into or out c vessel.

(d) Bridles used to handle flus or box type pallets shall be of s design as to prevent them from b ing disengaged from the pallet load.

§ 1918.68 Chutes, gravity conveyor rollers.

(a) Chutes used in the manual dling of cargo shall be of ade length and strength for the u

which they are put and shall be kept free of splinters and sharp edges.

(b) Chutes shall be equipped with sideboards of sufficient height to prevent cargo from falling off.

(c) Chutes and gravity roller sections shall be firmly placed or secured to prevent displacement.

(d) Gravity rollers shall be of sufficient strength for the weight of material which is placed upon them. Rollers shall be locked in position to prevent them from falling or jumping out of the frame.

(e) Frames shall be kept free of burrs and sharp edges.

(f) When necessary for safe operation, provision shall be made for braking objects at the delivery end of the roller or chute.

§ 1918.69 Powered conveyors.

(a) Readily accessible stop controls shall be provided for use in an emergency. Whenever the operation of any power conveyor requires personnel to work in the immediate vicinity of the conveyor, the conveyor controls shall not be left unattended while the conveyor is in operation.

(b) Electric motors and controls on grain trimmers shall be of the explosion-proof type approved by the Underwriters' Laboratories, Incorporated, for use in hazardous locations, Class II, Group G.

(c) All conveyor and trimmer drives which create a hazard shall be adequately guarded.

(d) Each grain trimmer shall have a control box located on the weather deck in close proximity to the spout feeding the trimmer.

(e) Power cables between the deck control box and the grain trimmer shall be used only in continuous lengths without splice or tap between connections.

§ 1918.70 Portable stowing winches.

(a) Portable stowing winches shall be used only with the knowledge and consent of the officer in charge of the vessel.

(b) Portable stowing winches used in connection with operations shall at all times be properly secured to prevent shifting.

(c) When internal combustion powered stowing winches are located below the weather deck or in other enclosed spaces, the exhaust shall be led topside to open air and away from the hatch opening.

§ 1918.71 Rain tents.

When using rain tents, lanyards shall be secured to padeyes or other fixed structures of the vessel which are strong enough or to objects which are heavy enough to withstand the breaking stress of all lanyards attached.

§ 1918.72 Tools.

(a) *General.* Employers shall not issue or permit the use of visibly unsafe tools.

(b) *Portable electric tools.* (1) Portable electric tools which are held in the hand shall be equipped with switches of a type which must be manually held in a closed position.

(2) All portable, power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

§ 1918.73 Mechanically-powered vehicles used aboard vessels.

(a) All automotive equipment shall be maintained in good working order and safety devices shall not be removed or made inoperative, except as otherwise provided.

(b) Overhead guards for fork lift trucks:

(1) Except as noted in paragraph (b)(5) of this section, fork lift trucks shall be equipped with overhead guards securely attached to the machines. The guards shall be of such design and construction as to protect the operator from boxes, cartons, packages, bagged material, and other

similar individual items of cargo which may fall from the load being handled or from stowage.

(2) The guard shall be of such construction that it does not interfere with good visibility, but openings in the top of the guard must not exceed six inches in one of the two dimensions, width or length. Larger openings may be permitted provided no opening is larger than the smallest unit of cargo that is likely to fall on the guard.

(3) The guard shall be large enough to extend over the operator in all normal circumstances of truck operation, including forward tilt.

(4) In fork lift trucks equipped with a single tilt cylinder, provision shall be made so that failure of this cylinder or associated parts will not cause the overhead guard to injure the operator.

(5) The overhead guard may be removed only at times when the construction of the truck is such that the presence of such a guard would prevent the truck from entering working spaces, and if the operator cannot be injured by low overhead obstructions.

(c) Guards for bulk cargo-moving vehicles:

(1) Every crawler type, rider operated, bulk cargo-moving vehicle shall be equipped with an operator's guard of such design and construction as to protect the operator, when seated, against injury from contact with a projecting overhead.

(2) Guards and their attachment points shall be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(3) Guards shall not be required when the vehicle is used in situations in which the possibility of the seated operator coming in contact with projecting overheads does not exist.

(d) End platform guards:

(1) Every truck operated from an end platform or pedal position shall be equipped with an operator's platform guard of such design that it permits rapid and unobstructed egress.

(2) Guards shall be so designed as to be able to withstand, without excessive deflection, a load equal to the weight of the loaded machine.

(e) Forks, fork extensions or oth attachments shall be suitably secu to prevent unintentional disenga ment.

(f) Weights and loads:

(1) The vehicle weight, with without removable counterweigh shall be clearly posted on all mecha cally-powered vehicles which are lif aboard vessels.

(2) The rated capacity of every f lift truck, with and without remova counterweights, shall be posted on vehicle in such a manner as to be re ily visible to the operator.

(3) Loads in excess of the rated pacity shall not be lifted or carried lift trucks.

(4) If loads are lifted by two or m trucks working in unison, the to weight shall not exceed the combi safe lifting capacity of all the truck

(g)(1) Steering knobs, when f nished on vehicles where the drive not in a sitting position, shall be o mushroom type unless the steer mechanism is of a type that preve road reactions from causing the ste ing handwheel to spin. The steer knob shall be mounted within the riphery of the wheel.

(2) Steering knobs or similar an lary devices shall not be used on steering wheels of trucks in which driver is in a sitting position.

(h) No load on a fork lift truck or dustrial crane truck shall be suspe ed or swung over any employee.

(i) When mechanically-powered hicles are used, adequate provisi shall be made to ensure that the wo ing surface can support the vehi and load, and that hatch covers, tr plates, or other temporary surfa cannot be dislodged by movement the vehicle.

(j) When mechanically-powered hicles are left unattended, the contr shall be neutralized, power shut brakes set, and the forks, blade, scoop shall be placed in the lowe position.

(k) When lift trucks or other chanically powered vehicles are be operated on open deck type bar the edges of the barges shall be s ably guarded by railings, sideboar timbers or other means sufficient prevent vehicles from rolling ov

board. When operated on covered lighters where door openings other than those being used are left open, adequate means shall be taken as necessary to prevent vehicles from rolling overboard through such openings.

§ 1918.74 Cranes and derricks other than vessel's gear.

(a) The following requirements shall be met in the use of cranes, whether hoisted aboard a vessel for use thereon or used to service a vessel from the dock, shore, or another vessel, and in the use of any other crane or derrick not a part of a vessel's permanent equipment, but used in longshoring operations:

(1) The crane weight shall be posted on all mobile cranes hoisted aboard vessels for temporary use thereon.

(2) All types of cranes shall be equipped with a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings and for which they are certificated, where required. The rating chart shall include all operating radii for all permissible boom lengths and jib lengths as applicable, with and without outriggers which may be fitted, and alternate ratings with optional equipment affecting such ratings. Necessary precautions or warnings shall be included. Operating controls shall be marked, or an explanation posted, at the operator's position to indicate function.

(3) A boom angle or radius indicator shall be fitted where applicable.

(4) All shore-based derricks shall be clearly marked to indicate all applicable capacity ratings, based on manufacturer's (or design) data for which certificated. Such ratings, and any necessary precautions or warnings shall be visible to the operator. Operating controls shall be marked, or an explanation posted at the operator's position to indicate function.

(5) The rated safe working loads of each crane and derrick, for the conditions of use, shall not be exceeded.

(6) No counterweights in excess of manufacturer's (or design) specifications shall be fitted. All equipment shall be used in accordance with manufacturer's (or design) specifications and recommendations.

(7) Pulling of barges or rail cars, and pulling of cargo in such a way as to exert side loading stresses upon crane booms shall not be permitted.

(8) No crane or derrick shall be used in any case where a visible defect affecting safe use exists.

(9) Unless exempted by the provisions of paragraph (a)(9)(viii) of this section, every crane used to load or discharge cargo into or out of a vessel shall be fitted with a load indicating device or alternative device in proper working condition which shall meet the following criteria:

(i) The type or model of any load indicating device which is used may be such as to provide (*a*) a direct indication in the cab of actual weight hoisted or a means of determining this by reference to crane ratings posted and visible to the operator, except that the use of a dynamometer or simple scale alone will not meet this requirement; or (*b*) an automatic weight-moment device or computer providing indications in the cab according to the radius and load at the moment; or alternatively (*c*) a device may be used which shall prevent an overloaded condition.

(ii) Accuracy of the load indicating device, weight-moment device, or overload protection device shall be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range from no less than 95 percent of the actual true total load (5 percent overload) to 110 percent of the actual true total load (10 percent underload). Such accuracy shall be required over the range of the daily operating variables to be expected under the conditions of use.

(iii) The device shall permit the operator to determine before making any lift that the indicating or substitute system is operative. In the alternative, if the device is not so mounted or attached and does not include such means of checking, it shall be certified by the manufacturer to remain operable within the limits stated in paragraph (a)(9)(ii) of this section for a specific period of time. Checks for accuracy, using known values of load,

shall be performed at the time of every certification survey (see § 1918.13) and at such additional times as may be recommended by the manufacturer.

(iv) When the load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

(v) Marking shall be conspicuously placed giving units of measure in pounds or both pounds and kilograms, capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions. Data providing the means of measurement, capacity of the system, accuracy of the system, and operating instructions and precautions shall similarly be provided in the case of systems utilizing indications other than actual weights. If the system used provides no readout, but is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking shall be provided giving the make and model of device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indications, and other data required shall be readily visible to the operator.

(vi) All load indicating devices shall be operative over the full operating radius. Overall accuracy shall be based on actual applied load and not on full scale (full capacity) load. For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus or minus 10 percent, it would accept a reading between 90,000 and 110,000 lbs., at full capacity of a machine with 100,000 lbs., maximum rating, but would also allow a reading between zero and 20,000 lbs., at that outreach (radius) at which the rating would be 10,000 lbs., capacity—an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the 100,000-lb. load but becomes a figure between 9,000 and 11,000 lbs., a much di and acceptable condition, a 10,000-lb. load.

(vii) When the device uses the as a factor in its use or in its op indications, the indicated (which may be in feet and/or r or degrees of boom angle, dep on the system used) shall be a which is within the range of a no greater than 110 percent actual radius to a figure which less than 97 percent of the (true) radius. When radius is p ed in degrees, and feet or mete required for necessary determin a conversion chart shall be provi

(viii) The load indicating dev quirements of this subparagra not apply to a crane (*a*) of equipped bridge type while ha containers known to be and ide as empty, or loaded, and in eith in compliance with the provisi § 1918.85(b) of this part; or hoisting other lifts by means of ing beam supplied by the crane facturer for the purpose and cases within the crane rating; (*b*) handling bulk commodities or c by means of clamshell buck magnet; (*c*) while used to han hold hoses in connection with tr of bulk liquids, or other hose h products; or (*d*) while the crane exclusively to handle cargo or ment the total actual gross wei which is known by means of m of the unit or units hoisted, whe total actual gross weight never e 11,200 lbs., and when 11,200 lbs., than the rated capacity of the cr the maximum outreach that is ble under the conditions of use time.

(ix) *Effective date of para* (a)(9). The provisions of this graph (a)(9) shall become effect May 27, 1972, or at the time next regular certification surve sequent to that date.

(10) Accessible areas withi swing radius of the outermost p the body of a revolving crane sh temporarily guarded by ropes or suitable means during cargo ations, so as to prevent an em being in a position to be caug tween the body of the crane and

parts of the vessel or of the crane itself.

(11) During the hours of darkness, illumination provided shall be sufficient under the prevailing circumstances so that an operator can see clearly the work area and any signalmen associated with the operation.

(b) The posted safe working loads of mobile crawler or truck cranes under the conditions of use shall not be exceeded.

(c) Accessible areas within the swing radius of the outermost part of the body of a revolving crane shall be temporarily guarded by ropes or other suitable means during cargo operations, so as to prevent an employee being in a position to be caught between the body of the crane and fixed parts of the vessel or of the crane itself.

§ 1918.75 Notifying ship's officers before using certain equipment.

(a) The employer shall notify the officer in charge of the vessel before bringing aboard ship internal combustion or electric powered tools, equipment or vehicles.

(b) The employer shall also notify the officer in charge of the vessel before using the ship's electric power for the operation of any of his electric tools or equipment.

§ 1918.76 Grounding.

(a) The frames of portable electric equipment and tools, except double insulated tools approved by Underwriters' Laboratories, Inc., shall be grounded either through a third wire in the cable containing the circuit conductors or through a separate wire which is grounded at the source of the current.

(b) Grounding circuits, other than by means of the structure of the vessel on which the equipment is being used, shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

Subpart H—Handling Cargo [1]

§ 1918.81 Slinging.

(a) Drafts shall be safely slung before being hoisted. Loose dunnage or debris hanging or protruding from loads shall be removed.

(b) Cargo handling bridles, such as pallet bridles, which are to remain attached to the hoisting gear while hoisting successive drafts, shall be attached by shackles, or other positive means shall be taken to prevent them from becoming accidentally disengaged from the cargo hook.

(c) Drafts of lumber, pipe, dunnage and other pieces, the top layer of which is not bound by the sling, shall be slung in such a manner as to prevent sliders. Double slings shall be used on unstrapped dunnage, except when, due to the size of hatch or deep tank openings, it is impractical to use them.

(d) Case hooks shall not be used for handling cases into or out of the vessel, unless the cases are specifically designed to be handled by this means.

(e) Bales of cotton, wool, cork, wood pulp, gunny bags or other similar articles shall not be hoisted into or out of the vessel by their straps unless the straps are of sufficient strength to support the weight of the bale and two hooks, each in a separate strap, are used.

(f) Loads requiring continuous manual guidance while in motion shall be provided with tag lines.

(g) No draft shall be hoisted unless the winch or crane operator(s) can clearly see the draft itself or see the signals of any signalman associated with the operation.

§ 1918.82 Building drafts.

(a) Drafts shall be so built or such means shall be taken as to prevent cargo from falling from the draft.

(b) Hand loaded buckets or tubs used in handling bulk cargo shall not be loaded above their rims.

[1] 46 CFR Parts 146-147 contains regulations of the U.S. Coast Guard pertaining to the handling of explosives and other dangerous cargo.

§ 1918.83 Stowed cargo, tiering and breaking down.

(a) When necessary, cargo shall be secured or blocked to prevent its shifting or falling.

(b) In breaking down, precautions shall be taken, when necessary, to prevent the remaining cargo from falling.

(c) Employees trimming bulk cargo shall be checked in and out by the foreman. Before securing any reefer compartment, a check shall be made to ensure that no employee remains inside. Frequent checks shall be made to ensure the safety of any employee working alone in a tank or cargo compartment.

§ 1918.84 Bulling cargo.

(a) Bulling cargo shall be done with the bull line led directly from the heel block, except that bulling may be done from the head of the boom when the nature of the cargo and the surface over which it is dragged are such as to avoid stalling the load, or when the winch actually does not have sufficient strength, with the purchase used, to overload the boom.

(b) Snatch blocks shall be used to provide a fair lead for the bull line so as to avoid unnecessary dragging of the bull line against coamings and obstructions.

(c) Falls led from cargo booms of vessels shall not be used to move scows, lighters or railroad cars.

(d) Snatch blocks shall not be used with the point of the hook resting on the flanage of a beam, but shall be hung from padeyes, straps or beam clamps. Snatch blocks or straps shall not be made fast to batten cleats or other insecure fittings.

(e) Beam or frame clamps shall be so secured to the beam as to minimize the possibility of their slipping, falling or being pulled from the beam.

§ 1918.85 Containerized cargo.

(a) On every cargo container there shall be permanently marked in pounds (1) the weight of the container when empty, (2) the maximum cargo weight that the container is intended and designed by its manufacturer to carry, and (3) the sum of these two weights.

(b) No container shall be lo aboard or discharged from any v by means of hoisting by ship's c handling gear or by shore cran derrick unless the following condi have been met:

(1) In the case of an empty con er, it shall be ascertained from the rier that such is the case and the tainer shall be identified before ing or discharge either by markin cargo stowage plans, by both m or otherwise in such manner every supervisor and foreman on site and in charge of loading or charging, and/or every crane or c hoisting equipment operator, and nalman, if any, shall be enable know that such container is empty

(2) In the case of a loaded conta either the actual gross weight sha plainly marked so as to be visib the crane or other hoisting equip operator or signalman, if any, an to every supervisor and foreman the site and in charge of loadin discharging; or the cargo stowage or equivalent permanently reco display serving the same purpose be provided to the crane or c hoisting equipment operator and nalman, if any, and to every super and foreman on the site and in ch of loading or discharging, and co the actual gross weight, the c stowage position, and the number or other positive identific of that specific container.

(3) Every outbound loaded cont received at a marine terminal rea load aboard a vessel without fu consolidation or loading shall weighed to obtain the actual weight, either at the terminal or where before loading aboard a v The open type vehicle carrying tainer and those built specifically used solely for the carriage of pressed gases are excepted from subparagraph and from paragr (b) (4) and (5) of this section.

(4) When container weighing s are located at a marine terminal, outbound container with a load solidated at that terminal shal weighed to obtain an actual weight before loading aboard a v

(5) When there are no cont weighing scales located at a m

terminal at which outbound containers are loaded with cargo, or where container loads are completed or consolidated there or elsewhere, and no weighing facility is available and located in a reasonably accessible location, the actual gross weight may be calculated, providing that accurate weights of all contents are known and a list of same, including the empty container weight, is totaled and posted on the container in a conspicuous place with identification of the source and date of calculation. Such list of contents may refer to cartons, cases, or other means of packaging but need not specifically identify the commodity or commodities involved except as otherwise required by law. Container weights so arrived at shall be subject to random sample weight checks at the nearest weighing facility. In cases where such weight checks or experience otherwise indicate consistently inaccurate weights arrived at by this means, the weight of containers so calculated at the source from which the inaccurate weights originated may no longer be recognized as true gross weights, in which case such containers may not be loaded aboard a vessel unless actual gross weights have been obtained by weighing. This procedure shall be continued until the Administration is satisfied by reasonable experience thereunder that correct weights will be furnished.

(6) In the case of loaded inbound containers from foreign ports, they shall, if they have not been weighed, have the calculated weight posted in the manner prescribed by paragraph (b)(5) of this section. All loaded inbound containers from foreign ports shall be subject to random sample weight checks at a time satisfactory to the Administration which may be at any time up to unloading the contents of the container at the terminal or until the container is delivered unopened to the land carrier. When such checks indicate a pattern of significant and continuing inaccuracy or when the provisions of paragraph (b)(7) of this section are not met, such suitable means as are acceptable to the Administration to protect the safety of the workers involved shall be taken during discharge to assure safety and such means shall be continued until the Administration is satisfied by experience thereunder that correct weights will be furnished.

(7) The identification and documentation provisions of paragraphs (b) (1) and (2) of this section shall apply to containers originating from foreign ports.

(8) Any scale used within the United States to weigh containers for the purpose of the requirements of this section shall meet the accuracy standards of the state or local public authority in which the scale is located.

(c) No container shall be hoisted if its actual gross weight exceeds the weight marked as required in paragraph (a)(3) of this section, or if it exceeds the capacity of the crane or other hoisting device intended for use, under the conditions in which said crane or other hoisting device is used. All hoisting of containers shall be by means which will safely do so without probable damage to the container, and using the lifting fittings provided.

(d) All outbound containers shall be inspected before loading for any visible defects in structural members and fittings, which would render unsafe their handling in loading. To the extent it is practicable, inbound containers shall be similarly inspected before discharge. Any outbound container found to have such a defect shall not be loaded unless the defect is first corrected. Any inbound container found to have such a defect shall either be discharged by such special means as to insure safety or shall be emptied before discharge.

(e) For the purpose of this section, the term "container" means a reusable cargo container of rigid construction and rectangular configuration, intended to contain one or more articles of cargo or bulk commodities for shipment aboard a vessel, and capable of utilization for this purpose by one or more other modes of transport without intermediate reloading. The term includes completely enclosed units, open top units, half or other fractional height units, units incorporating liquid or gas tanks, and any other variations serving the same basic purpose and fitting into the container system, demountable or with attached wheels.

The term, however, does not include cylinders, drums, crates, cases, cartons, packages, sacks, unitized loads or any other of the usual forms of packaging.

§ 1918.86 Hazardous cargo.

(a) Prior to the start of cargo handling operations a responsible representative of the employer shall ascertain from labels on the cargo, from the dangerous cargo manifest, or from other shipping documents, what hazardous cargoes, if any, are to be handled and the general nature of the hazard. He shall inform employees of the general nature of the hazard, the importance to the employees of preventing damage to the cargo, and the special precautions to be taken. The responsible representative of the employer aboard the vessel shall instruct the employees to notify him of any leaks or spills.

(b) Drafts of cargo ascertained by the employer to be hazardous shall be so slung and secured that neither the draft nor individual packages can fall as a result of tipping the draft or slacking the supporting gear.

(c) If a cargo ascertained by the employer to be hazardous is spilled or any of its containers has or develops a serious leak, the employees shall be removed from the hold or compartment until the employer has ascertained the specific hazards, has provided such personal protective equipment and clothing and such ventilation and fire protective equipment as may be necessary to avoid, or protect against, the hazard, and has instructed the employees as to the safe method of cleaning up and disposing of a spill or handling and disposing of the leaking containers. The actual work of clean up or disposal shall be carried out under the personal supervision of a responsible representative of the employer aboard the vessel.

Subpart I—General Working Conditions

§ 1918.90 Hazard communication.

(a) *Purpose.* (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legal requirements of a state, or political subdivision of a state, pertaining to the subject. Evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of material safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce, through any court or agency, any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) *Scope and application.* (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers.

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees; and,

(iii) Employers shall ensure that laboratory employees are apprised of the hazards of the chemicals in their workplaces in accordance with paragraph (h) of this section.

(4) In work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use (such as are found in marine cargo handling, warehousing, or retail sales), this section applies to these operations only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

(iii) Employers shall ensure that employees are provided with information and training in accordance with paragraph (h) of this section (except for the location and availability of the written hazard communication program under paragraph (h)(1)(iii)), to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

(5) This section does not require labeling of the following chemicals:

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(ii) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device, including materials intended for use as ingredients in such products (e.g. flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*) and regulations issued under that Act, when they are subject to the labeling requirements under that Act by the Food and Drug Administration;

(iii) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 *et seq.*) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol Tobacco, and Firearms; and,

(iv) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission.

(6) This section does not apply to:

(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Tobacco or tobacco products;

(iii) Wood or wood products;

(iv) Articles;

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(v) Foods, drugs, cosmetics, or alcoholic beverages in a retail establishment which are packaged for sale to consumers;

(vi) Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace;

(vii) Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 *et seq.*) and Federal Hazardous Substances Act (15 U.S.C. 1261 *et seq.*) respectively, where the employer can demonstrate it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposures experienced by consumers; and,

(viii) Any drug, as that term is defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 *et seq.*), when it is in solid, final form for direct administration to the patient (i.e. tablets or pills).

(c) *Definitions.* "Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Chemical" means any element, chemical compound or mixture of elements and/or compounds.

"Chemical manufacturer" means an employer with a workplace where chemical(s) are produced for use or distribution.

"Chemical name" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

"Combustible liquid" means any liquid having a flashpoint at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

"Common name" means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

"Compressed gas" means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F (21.1 °C); or

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D–323–72.

"Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Distributor" means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

"Employee" means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous

chemicals only in non-routine, isolated instances are not covered.

"Employer" means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

"Explosive" means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

"Exposure" or "exposed" means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.

"Flammable" means a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture;

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in § 190.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

"Flashpoint" means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24–1979 (ASTM D 56–79)) for liquids with a viscosity of less than 45 Saybolt University Seconds (SUS) at 100 °F (37.8 °C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or

(ii) Pensky-Martens Closed Tester (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7–1979 (ASTM D 93–79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 °F (37.8 °C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTMD 3278–78))

Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

"Foreseeable emergency" means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

"Hazardous chemical" means any chemical which is a physical hazard or a health hazard.

"Hazard warning" means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

"Health hazard" means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with es-

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tablished scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

"Identity" means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

"Immediate use" means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

"Importer" means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

"Label" means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

"Material safety data sheet (MSDS)" means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

"Mixture" means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

"Organic peroxide" means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

"Oxidizer" means a chemical other than a blasting agent or explosive as defined in § 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

"Physical hazard" means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

"Produce" means to manufacture, process, formulate, or repackage.

"Pyrophoric" means a chemical that will ignite spontaneously in air at a temperature of 130 °F (54.4 °C) or below.

"Responsible party" means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

"Specific chemical identity" means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. Appendix D sets out the criteria to be used in evaluating trade secrets.

"Unstable (reactive)" means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

"Use" means to package, handle, react, or transfer.

"Water-reactive" means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

"Work area" means a room or defined space in a workplace where hazardous chemicals are produced or

used, and where employees are present.

"Workplace" means an establishment, job site, or project, at one geographical location containing one or more work areas.

(d) *Hazard determination.* (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

(ii) *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment,* American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition).

The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);

(ii) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or

(iii) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

NOTE: The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which

would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(e) *Written hazard communication program.* (1) Employers shall develop, implement, and maintain at the workplace, a written hazard communication program for their workplaces which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(2) *Multi-employer workplaces.* Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:

(i) The methods the employer will use to provide the other employer(s) with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous chemical the other employer(s)' employees may be exposed to while working;

(ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,

(iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.

(3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20(e).

(f) *Labels and other forms of warning.* (1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s);

(ii) Appropriate hazard warnings; and

(iii) Name and address of the chemical manufacturer, importer, or other responsible party.

(2) For solid metal (such as a steel beam or a metal casting) that is not exempted as an article due to its downstream use, the required label may be transmitted to the customer at the time of the intial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes. The label may be transmitted with the initial shipment itself, or with the material safety data sheet that is to be provided prior to or at the time of the first shipment. This exception to requiring labels on every container of hazardous chemicals is only

for the solid metal itself and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the metal and to which employees handling the metal may be exposed (for example, cutting fluids or lubricants).

(3) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 *et seq.*) and regulations issued under that Act by the Department of Transportation.

(4) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.

(5) Except as provided in paragraphs (f)(6) and (f)(7) of this section the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and

(ii) Appropriate hazard warnings.

(6) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(5) of this section to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift.

(7) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

(8) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(9) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(10) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.

(g) *Material safety data sheets.* (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English and shall contain at least the following information:

(i) The identity used on the label, and, except as provided for in paragraph (i) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole:

(*1*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d)(4) of this section shall be listed if the concentrations are 0.1% or greater; and,

(*2*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1%

(0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees; and,

(*3*) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;

(ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(v) The primary route(s) of entry;

(vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available;

(vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) *Annual Report on Carcinogens* (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) *Monographs* (latest editions), or by OSHA;

(viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;

(ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;

(x) Emergency and first aid procedures;

(xi) The date of preparation of the material safety data sheet or the last change to it; and,

(xii) The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their intitial shipment, and with the first shipment after a material safety data sheet is updated. The chemical manufacturer or importer shall either

provide material safety data sheets with the shipped containers or send them to the employer prior to or at the time of the shipment. If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the employer shall obtain one from the chemical manufacturer, importer, or distributor as soon as possible.

(7) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers. Retail distributors which sell hazardous chemicals to commercial customers shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available. Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors which have informed them that the retail distributor does not sell the product to commercial customers or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain copies of the required material safety data sheets for each hazardous chemical in the workplace, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).

(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at a central location at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in in their work areas(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20 (e). The Director shall also be given access to material safety data sheets in the same manner.

(h) *Employee information and training.* Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

(1) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and,

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(2) *Training.* Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

(i) *Trade secrets.* (1) The chemical manufacturer, importer, or employer

may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

(i) The claim that the information withheld is a trade secret can be supported;

(ii) Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed;

(iii) The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,

(iv) The specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of this paragraph.

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need of a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i)(3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse) providing medical or other occupational health services to exposed employee(s), and to employees or designated representatives, if:

(i) The request is in writing;

(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(A) To assess the hazards of the chemicals to which employees will be exposed;

(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(D) To provide medical treatment to exposed employees;

(E) To select or assess appropriate personal protective equipment for exposed employees;

(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information to the health professional, employee, or designated representative, would not satisfy the purposes described in paragraph (i)(3)(ii) of this section:

(A) The properties and effects of the chemical;

(B) Measures for controlling workers' exposure to the chemical;

(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and,

(v) The health professional, and the employer or contractor of the services of the health professional (i.e. downstream employer, labor organization, or individual employee), employee, or designated representative, agree in a written confidentiality agreement that the health professional, employee, or designated representative, will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the

ement or by the chemical manu-
urer, importer, or employer.
) The confidentiality agreement
norized by paragraph (i)(3)(iv) of
section:
May restrict the use of the infor-
ion to the health purposes indicat-
the written statement of need;
) May provide for appropriate
l remedies in the event of a breach
he agreement, including stipula-
of a reasonable pre-estimate of
y damages; and,
) May not include requirements
he posting of a penalty bond.
) Nothing in this standard is
nt to preclude the parties from
uing non-contractual remedies to
extent permitted by law.
) If the health professional, em-
ee, or designated representative
iving the trade secret information
es that there is a need to disclose
OSHA, the chemical manufactur-
mporter, or employer who provid-
he information shall be informed
he health professional, employee,
esignated representative prior to,
t the same time as, such disclo-
.
) If the chemical manufacturer,
rter, or employer denies a written
est for disclosure of a specific
ical identity, the denial must:
Be provided to the health profes-
l, employee, or designated repre-
ative, within thirty days of the re-
t;
) Be in writing;
) Include evidence to support the
n that the specific chemical identi-
a trade secret;
) State the specific reasons why
request is being denied; and,
) Explain in detail how alternative
rmation may satisfy the specific
ical or occupational health need
out revealing the specific chemi-
dentity.
) The health professional, employ-
r designated representative whose
est for information is denied
r paragraph (i)(3) of this section
refer the request and the written
l of the request to OSHA for con-
ation.
) When a health professional, em-
ee, or designated representative
s the denial to OSHA under para-

graph (i)(8) of this section, OSHA shall consider the evidence to determine if:

(i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret;

(ii) The health professional, employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and,

(iii) The health professional, employee, or designated representative has demonstrated adequate means to protect the confidentiality.

(10)(i) If OSHA determines that the specific chemical identity requested under paragraph (i)(3) of this section is not a *bona fide* trade secret, or that it is a trade secret, but the requesting health professional, employee, or designated representative has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.

(ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.

(11) If a citation for a failure to release specific chemical identity information is contested by the chemical manufacturer, importer, or employer, the matter will be adjudicated before the Occupational Safety and Health Review Commission in accordance with the Act's enforcement scheme and the applicable Commission rules of procedure. In accordance with the Commission rules, when a chemical

manufacturer, importer, or employer continues to withhold the information during the contest, the Administrative Law Judge may review the citation and supporting documentation *in camera* or issue appropriate orders to protect the confidentiality or such matters.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

(j) *Effective dates.* (1) Chemical manufacturers, importers, and distributors shall ensure that material safety data sheets are provided with the next shipment of hazardous chemicals to employers after September 23, 1987.

(2) Employers in the non-manufacturing sector shall be in compliance with all provisions of this section by May 23, 1988. (Note: Employers in the manufacturing sector (SIC Codes 20 through 39) are already required to be in compliance with this section.)

(Approved by the Office of Management and Budget under control number 1218-0072)

Appendix A to § 1918.90 Health Hazard Definitions (*Mandatory*)

Although safety hazards related to the physical characteristics of a chemical can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body—such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees—such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects or signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causative factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most chemicals have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms "acute" and "chronic" are used to delineate between effects on the basis of severity or duration. "Acute" effects usually occur rapidly as a result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standards Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1-1982)—irritation, corrosivity, sensitization and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects which may occur as a result of occupational exposure, such as, for example, narcosis.

Similarly, the term chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity. These effects are obviously a concern in the workplace, but again, do not adequately cover the area of chronic effects, excluding, for example, blood dyscrasias (such as anemia), chronic bronchitis and liver atrophy.

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them. Appendix B, which is also mandatory, outlines the principles and procedures of hazardous assessment.

For purposes of this section, any chemicals which meet any of the following definitions, as determined by the criteria set forth in Appendix B are health hazards:

1. *Carcinogen:* A chemical is considered to be a carcinogen if:

(a) It has been evaluated by the International Agency for Research on Cancer

RC), and found to be a carcinogen or po-tial carcinogen; or

b) It is listed as a carcinogen or potential einogen in the *Annual Report on Car-ogens* published by the National Toxicol-Program (NTP) (latest edition); or,

c) It is regulated by OSHA as a carcino-.

Corrosive: A chemical that causes visi- destruction of, or irreversible alterations living tissue by chemical action at the of contact. For example, a chemical is sidered to be corrosive if, when tested on intact skin of albino rabbits by the thod described by the U.S. Department Transportation in Appendix A to 49 CFR 173, it destroys or changes irreversibly structure of the tissue at the site of con- following an exposure period of four rs. This term shall not refer to action on imate surfaces.

Highly toxic: A chemical falling within of the following categories:

) A chemical that has a median lethal e (LD_{50}) of 50 milligrams or less per kilo-m of body weight when administered lly to albino rats weighing between 200 300 grams each.

) A chemical that has a median lethal e (LD_{50}) of 200 milligrams or less per gram of body weight when administered continuous contact for 24 hours (or less eath occurs within 24 hours) with the e skin of albino rabbits weighing be-en two and three kilograms each.

) A chemical that has a median lethal centration (LC_{50}) in air of 200 parts per lion by volume or less of gas or vapor, or illigrams per liter or less of mist, fume, dust, when administered by continuous alation for one hour (or less if death rs within one hour) to albino rats thing between 200 and 300 grams each.

Irritant: A chemical, which is not corro-, but which causes a reversible inflam-ory effect on living tissue by chemical on at the site of contact. A chemical is a irritant if, when tested on the intact of albino rabbits by the methods of 16 1500.41 for four hours exposure or by r appropriate techniques, it results in mpirical score of five or more. A chemi-s an eye irritant if so determined under procedure listed in 16 CFR 1500.42 or r appropriate techniques.

Sensitizer: A chemical that causes a tantial proportion of exposed people or mals to develop an allergic reaction in mal tissue after repeated exposure to chemical.

Toxic. A chemical falling within any of following categories:

A chemical that has a median lethal (LD_{50}) of more than 50 milligrams per gram but not more than 500 milligrams kilogram of body weight when adminis-tered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose (LD_{50}) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration (LC_{50}) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

7. *Target organ effects.* The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

a. Hepatotoxins: Chemicals which produce liver damage
   Signs & Symptoms: Jaundice; liver enlargement
   Chemicals: Carbon tetrachloride; nitrosamines
b. Nephrotoxins: Chemicals which produce kidney damage
   Signs & Symptoms: Edema; proteinuria
   Chemicals: Halogenated hydrocarbons; uranium
c. Neurotoxins: Chemicals which produce their primary toxic effects on the nervous system
   Signs & Symptoms: Narcosis; behavioral changes; decrease in motor functions
   Chemicals: Mercury; carbon disulfide
d. Agents which act on the blood or hematopoietic system: Decrease hemoglobin function; deprive the body tissues of oxygen
   Signs & Symptoms: Cyanosis; loss of consciousness
   Chemicals: Carbon monoxide; cyanides
e. Agents which damage the lung: Chemicals which irritate or damage the pulmonary tissue
   Signs & Symptoms: Cough; tightness in chest; shortness of breath
   Chemicals: Silica; asbestos

f. Reproductive toxins: Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
Signs & Symptoms: Birth defects; sterility
Chemicals: Lead; DBCP
g. Cutaneous hazards: Chemicals which affect the dermal layer of the body
Signs & Symptoms: Defatting of the skin; rashes; irritation
Chemicals: Ketones; chlorinated compounds
h. Eye hazards: Chemicals which affect the eye or visual capacity
Signs & Symptoms: Conjunctivitis; corneal damage
Chemicals: Organic solvents; acids

Appendix B to § 1918.90 Hazard Determination (*Mandatory*)

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process which relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance-orientation of the hazard determination does not diminish the duty of the chemical manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. *Carcinogenicity*: As described in paragraph (d)(4) and Appendix A of this section, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section.

2. *Human data*: Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.

3. *Animal data*: Human evidence of health effects in exposed populations is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).

4. *Adequacy and reporting of data*. The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet. The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazard.

Appendix C to § 1918.90 Information Sources (*Advisory*)

The following is a list of available data sources which the chemical manufacturer, importer, distributor, or employer may wish to consult to evaluate the hazards of chemicals they produce or import:

—Any information in their own company files, such as toxicity testing results or illness experience of company employees.

—Any information obtained from the supplier of the chemical, such as material safety data sheets or product safety bulletins.

—Any pertinent information obtained from the following source list (latest editions should be used):

Condensed Chemical Dictionary
Van Nostrand Reinhold Co., 135 West 50th Street, New York, NY 10020.

The Merck Index: An Encyclopedia of Chemicals and Drugs
Merck and Company, Inc., 126 E. Lincoln Ave., Rahway, NJ 07065.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man
Geneva: World Health Organization, International Agency for Research on Cancer, 1972-Present. (Multivolume work). Summaries are available in supplement volumes. 49 Sheridan Street, Albany, NY 12210.

Industrial Hygiene and Toxicology, by F.A. Patty
John Wiley & Sons, Inc., New York, NY (Multivolume work).

Clinical Toxicology of Commercial Products
Gleason, Gosselin, and Hodge

Casarett and Doull's Toxicology: The Basic Science of Poisons
Doull, Klaassen, and Amdur, Macmillan Publishing Co., Inc., New York, NY.

Industrial Toxicology, by Alice Hamilton and Harriet L. Hardy
Publishing Sciences Group, Inc., Acton, MA.

Toxicology of the Eye, by W. Morton Grant
Charles C. Thomas, 301-327 East Lawrence Avenue, Springfield, IL.

cognition of Health Hazards in Industry
William A. Burgess, John Wiley and Sons, 605 Third Avenue, New York, NY 10158.
emical Hazards of the Workplace
lick H. Proctor and James P. Hughes, J.P. Lipincott Company, 6 Winchester Terrace, New York, NY 10022.
ndbook of Chemistry and Physics
hemical Rubber Company, 18901 Cranwood Parkway, Cleveland, OH 44128.
reshold Limit Values for Chemical Substances and Physical Agents in the Work Environment and Biological Exposure Indices with Intended Changes
merican Conference of Governmental Industrial Hygienists (ACGIH). 6500 Glenway Avenue, Bldg. D-5, Cincinnati, OH 45211.

nformation on the physical hazards of chemicals may be found in publications of the National Fire Protection Association, Boston, MA.

ors: The following documents may be chased from the Superintendent of Documents, U.S. Government Printing Office, shington, DC 20402.

cupational Health Guidelines
IOSH/OSHA (NIOSH Pub. No. 81-123)
OSH Pocket Guide to Chemical Hazards
IOSH Pub. No. 85-114
istry of Toxic Effects of Chemical Substances
IOSH Pub. No. 80-102
cellaneous Documents published by the National Institute for Occupational Safety and Health:
riteria documents.
pecial Hazard Reviews.
ecupational Hazard Assessments.
urrent Intelligence Bulletins.
HA's General Industry Standards (29 CFR Part 1910)
P Annual Report on Carcinogens and Summary of the Annual Report on Carcinogens.
ational Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (703) 487-4650.

BIBLIOGRAPHIC DATA BASES

Service provider	File name
graphic Retrieval Serv- (BRS), 1200 Route 7, ham, NY 12110.	Biosis Previews CA Search Medlars NTIS Hazardline American Chemical Society Journal Excerpta Medica IRCS Medical Science Journal Pre-Med Intl Pharmaceutical Abstracts Paper Chem

BIBLIOGRAPHIC DATA BASES—Continued

Service provider	File name
Lockheed—DIALOG Information Service, Inc., 3460 Hillview Avenue, Palo Alto, CA 94304.	Biosis Prev. Files CA Search Files CAB Abstracts Chemical Exposure Chemname Chemsis Files Chemzero Embase Files Environmental Bibliographies Enviroline Federal Research in Progress IRL Life Science Collection NTIS Occupational Safety and Health (NIOSH) Paper Chem
SDC—Orbit, SDC Information Service, 2500 Colorado Avenue, Santa Monica, CA 90406.	CAS Files Chemdex, 2, 3 NTIS
National Library of Medicine, Department of Health and Human Services, Public Health Service, National Institutes of Health, Bethesda, MD 20209.	Hazardous Substances Data Bank (NSDB) Medline files Toxline Files Cancerlit RTECS Chemline
Pergamon International Information Corp., 1340 Old Chain Bridge Rd., McLean, VA 22101.	Laboratory Hazard Bulletin
Questel, Inc., 1625 Eye Street, NW., Suite 818, Washington, DC 20006.	CIS/ILO Cancernet
Chemical Information System ICI (ICIS), Bureau of National Affairs, 1133 15th Street, NW., Suite 300, Washington, DC 20005.	Structure and Nomenclature Search System (SANSS) Acute Toxicity (RTECS) Clinical Toxicology of Commercial Products Oil and Hazardous Materials Technical Assistance Data System CCRIS CESARS
Occupational Health Services, 400 Plaza Drive, Secaucus, NJ 07094.	MSDS Hazardline

APPENDIX D TO § 1918.90 DEFINITION OF "TRADE SECRET" (*Mandatory*)

The following is a reprint of the *Restatement of Torts* section 757, comment *b* (1939):

b. Definition of trade secret. A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers. It differs from other secret information in a business (see § 759 of the *Restatement of Torts*

which is not included in this Appendix) in that it is not simply information as to single or ephemeral events in the conduct of the business, as, for example, the amount or other terms of a secret bid for a contract or the salary of certain employees, or the security investments made or contemplated, or the date fixed for the announcement of a new policy or for bringing out a new model or the like. A trade secret is a process or device for continuous use in the operations of the business. Generally it relates to the production of goods, as, for example, a machine or formula for the production of an article. It may, however, relate to the sale of goods or to other operations in the business, such as a code for determining discounts, rebates or other concessions in a price list or catalogue, or a list of specialized customers, or a method of bookkeeping or other office management.

Secrecy. The subject matter of a trade secret must be secret. Matters of public knowledge or of general knowledge in an industry cannot be appropriated by one as his secret. Matters which are completely disclosed by the goods which one markets cannot be his secret. Substantially, a trade secret is known only in the particular business in which it is used. It is not requisite that only the proprietor of the business know it. He may, without losing his protection, communicate it to employees involved in its use. He may likewise communicate it to others pledged to secrecy. Others may also know of it independently, as, for example, when they have discovered the process or formula by independent invention and are keeping it secret. Nevertheless, a substantial element of secrecy must exist, so that, except by the use of improper means, there would be difficulty in acquiring the information. An exact definition of a trade secret is not possible. Some factors to be considered in determining whether given information is one's trade secret are: (1) The extent to which the information is known outside of his business; (2) the extent to which it is known by employees and others involved in his business; (3) the extent of measures taken by him to guard the secrecy of the information; (4) the value of the information to him and his competitors; (5) the amount of effort or money expended by him in developing the information; (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

Novelty and prior art. A trade secret may be a device or process which is patentable; but it need not be that. It may be a device or process which is clearly anticipated in the prior art or one which is merely a mechanical improvement that a good mechanic can make. Novelty and invention are not requisite for a trade secret as they are for patentability. These requirements are essential to patentability because a patent protects against unlicensed use of the patented device or process even by one who discovers it properly through independent research. The patent monopoly is a reward to the inventor. But such is not the case with a trade secret. Its protection is not based on a policy of rewarding or otherwise encouraging the development of secret processes or devices. The protection is merely against breach of faith and reprehensible means of learning another's secret. For this limited protection it is not appropriate to require also the kind of novelty and invention which is a requisite of patentability. The nature of the secret is, however, an important factor in determining the kind of relief that is appropriate against one who is subject to liability under the rule stated in this section. Thus, if the secret consists of a device or process which is a novel invention, one who acquires the secret wrongfully is ordinarily enjoined from further use of it and is required to account for the profits derived from his past use. If, on the other hand, the secret consists of mechanical improvements that a good mechanic can make without resort to the secret, the wrongdoer's liability may be limited to damages, and an injunction against future use of the improvements made with the aid of the secret may be inappropriate.

[52 FR 31877, Aug. 24, 1987, as amended at 53 FR 15035, Apr. 27, 1988; 54 FR 6888, Feb. 15, 1989; 54 FR 24334, June 7, 1989]

§ 1918.91 Housekeeping.

(a) Weather deck walking and working areas shall be kept reasonably clear of lines, bridles, dunnage and all other loose tripping or stumbling hazards.

(b) Gear or equipment, when not in use, shall be removed from the immediate work areas, or shall be so placed as not to present a hazard.

(c) Slippery conditions shall be eliminated as they occur.

(d) Loose paper, dunnage and debris shall be collected as the work progresses and be kept clear of the immediate work area.

(e) Dunnage shall not be placed on deck where it interferes with the free movement of the drafts.

(f) Dunnage racked against sweat battens shall not be used when the levels of such racks are above the safe reach of employees.

(g) Dunnage, hatch beams, tarpau-
s or gear not in use shall be stowed
closer than 3 feet to the port and
arboard sides of the weather deck
atch coaming, except that a reasona-
e tolerance shall be permitted where
rict adherence is rendered impracti-
ble due to the circumstances.
(h) Nails: (1) Nails which are pro-
uding from shoring or fencing in the
mediate work areas shall be bent
er or otherwise rendered harmless.
(2) Dunnage, lumber, or shoring ma-
rial in which there are visibly pro-
uding nails shall be removed from
e immediate work area, or, if left in
at area, the nails shall be bent over
otherwise rendered harmless.
(i) Employees shall not be exposed
ice which may fall from aloft under
nditions where the accumulation of
ch ice and the circumstances at the
ne are such as to constitute a
zard.

918.92 Illumination.

a) All walking and working areas
all be adequately illuminated.
b) Portable lights shall meet the
lowing requirements:
1) Portable lights shall be equipped
th substantial reflectors and guards
prevent flammable and other mate-
l from coming in contact with the
lb, except that guards are not re-
ired where the construction of the
flector is such that the bulb is
eply recessed.
2) Portable lights shall be equipped
th heavy duty electric cords and
y be suspended by such cords only
en the means of attachment of the
d to the light is such as to prevent
e light from being suspended by the
ctrical connections. All connections
d insulation shall be maintained in
e condition.
3) Lighting wires and fixtures for
rtable lights shall be so arranged as
be free from contact with drafts,
ming gear, or other moving equip-
nt.
4) Portable lights shall be so ar-
ged that they do not shine in the
s of winchdrivers or hatchtenders.
5) Portable cargo lights furnished
the employer for use aboard vessels
l purchased after September 1,
8, shall be listed as approved by the U.S. Coast Guard or shall bear the Underwriters Laboratories, Inc., Marine Label.

(c) Employees shall not be permitted to enter dark holds, compartments, decks or other places without a flash light or other suitable portable light. The use of matches or open flame lights is prohibited.

§ 1918.93 Ventilation and atmospheric conditions.

(a) Ventilation requirements with respect to carbon monoxide:

(1)(i) When internal combustion engines exhaust into a hold, an intermediate deck, or any other compartment, the employer shall see that tests of the carbon monoxide content of the atmosphere are made with such frequency as is found by test to be necessary in the type and location of the operation, and under the conditions existing, to insure that dangerous concentrations do not develop. Such tests shall be made in the area in which employees are working, by persons competent in the use of the test equipment and a procedure. Where operations are located in a deep tank or refrigerated compartment, the first test shall be made within one half hour of the time the machine(s) start.

(ii) The carbon monoxide content of the atmosphere shall be maintained at not more than 50 parts per million (0.005%) as a time weighted average, and employees shall be removed from the compartment if the carbon monoxide concentration exceeds 100 parts per million (0.01%). The term "time weighted average" means that for any period of time in which the concentration exceeds 50 parts per million, it shall be maintained at a corresponding amount below 50 parts per million for an equal period of time.

(iii) When neither natural ventilation nor the vessel's ventilating system, where fitted, is adequate to keep the carbon monoxide concentration within the allowable limits set forth in this paragraph, the employer shall use supplementary means of portable ventilation in such size and number and so arranged as to bring such concentration within such limits before work is resumed.

(2) A record of the date, time, location, and results of the tests required by paragraph (a)(1) of this section shall be maintained for at least 30 days after the work is completed. The record shall be available for examination by representatives of the Occupational Safety and Health Administration.

(3) The intakes of portable blowers and any exposed belt drives shall be guarded adequately by screens.

(4) The frames of portable blowers shall be grounded at the source of the current either through a third wire in the cable containing the circuit conductors or through a separate wire. When the vessel is the source of the current the ground shall be made to the structure of the vessel. Electric cords used shall be free of visible defects.

(5) The employer shall not permit the use of shore electrical circuits unless they have been checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current. When the vessel is the source of the current, it is required only that a check be made to ensure good electrical contact between the ground wire and the vessel's structure.

(b)(1) Before commencing to load grain which has been fumigated, the employer shall ascertain from the elevator operator that the cargo is free from hazardous concentrations of fumigants.

(2) The employer shall not load tobacco until the carrier has provided written notification as to whether or not the cargo has been fumigated. If the tobacco has been fumigated with any toxic fumigant, the employer shall not commence loading until written warranty has been received from the fumigation facility that the aeration of the cargo has been such as to reduce the concentration of the fumigant to a safe limit. Such notification and warranty shall be maintained for at least 30 days after the loading of the tobacco has been completed, and shall be available for examination by representatives of the Occupational Safety and Health Administration.

(3) Before commencing to load cargo other than cargo mentioned in paragraph (b)(1) or (b)(2) of this section, which has been fumigated at the loading port, the employer shall ascertain that such cargo does not contain a hazardous concentration of fumigants.

(c) Before employees are permitted to enter or work in any stowage space or tank, the employer shall ascertain from the officer in charge of the vessel, or the vessel's agent or operator, whether explosive, poisonous, noxious, or gaseous cargoes have been carried or are stowed therein, or whether dry ice has been used as a refrigerant therein, or whether such places have been fumigated, or whether there is a possibility of oxygen deficiency. Upon establishing that any of such conditions may exist, the employer shall ascertain from the officer in charge of the vessel, if he is properly equipped and qualified so to evaluate, the condition of the work place with respect to atmospheric contaminants or deficiencies. If the officer in charge of the vessel is not equipped or qualified to carry out such evaluation, this shall be done by another person qualified and equipped to do it.

(d) When it is ascertained as set forth in paragraph (c) of this section that the atmosphere in which employees would be working is immediately dangerous to life, or if the atmosphere becomes immediately dangerous to life during cargo handling operations, no employee shall be permitted to enter or remain in the work place until the atmospheric condition has been made safe. Atmospheres immediately dangerous to life are those which contain less than 16.5 percent oxygen, or which by reason of the high toxicity of the contaminant, as in fumigation, or the high concentration of contaminants, as with carbon dioxide, would endanger the life of a person breathing them for even a short period of time.

(e) When it is ascertained as set forth in paragraph (c) of this section that the atmosphere in which employees would be working contains dangerous gaseous contaminants not immediately dangerous to life, or if the at-

nosphere becomes so contaminated uring cargo handling operations, no mployee shall be permitted to enter r remain in the work place until the tmosphere is made safe, or the em-loyees are protected by suitable respi-atory protective equipment in accord-nce with the requirements of 1918.102 (a) and (b). Dangerous gase-us contaminants not immediately angerous to life are gases present in oncentrations that could be breathed or a short period of time without en-angering the life of a person breath-g them, but might produce discom-rt and injury after a prolonged ngle exposure or repeated short ex-osures.

(f) When employees are exposed to eavy concentrations of dusts, as in ading bulk grain, they shall be pro-cted by suitable respiratory protec-ve equipment in accordance with the quirements of § 1918.102 (a) and (c).

1918.94 Sanitation and drinking water.

(a) Longshoring operations shall not e carried on in the immediate vicinity uncovered garbage or in the way of verboard discharges from sanitary nes unprotected by a baffle or splash oards.

(b) Clean drinking water in clean, vered containers shall be provided. dividual sanitary drinking cups or me other equally sanitary device all be conveniently available.

1918.95 Longshoring operations in the vicinity of repair and maintenance work.

(a) Longshoring operations shall not carried on when chipping or scaling decks, bulkheads or sides of vessels eates excessive noise which inter-res with communication of warnings instructions.

(b) Longshoring operations shall not carried on in the hold or on deck neath men working in the rigging erhead when such overhead work eates a hazard of falling objects.

(c) Longshoring operations shall not carried on where employees are ex-sed to injurious light rays, hot tal, or sparks, any of which result m welding or cutting.

(d) Longshoring operations shall not carried on where employees are exposed to unsafe concentrations of dust or vapors from sand blasting or spray painting.

§ 1918.96 First aid and life saving equipment.

(a) Unless a first aid room is close at hand and a qualified attendant is prepared to render first aid to employees on behalf of the employer, the employer shall furnish a first aid kit for each vessel on which work is being performed, except that when work is being performed on more than one small vessel at one pier only one kit shall be required. The kit shall be kept in the immediate vicinity of the vessel and at least one employee holding a currently valid first aid certificate shall be close at hand.

(b) The first aid kit shall consist of a weatherproof container with individual sealed packages for each type of item. The contents of such kit shall include a sufficient quantity of at least the following types of items:

Gauze roller bandages, 1 inch and 2 inch.
Gauze compress bandages, 4 inch.
Adhesive bandages, 1 inch.
Triangular bandage, 40 inch.
Ammonia inhalants and ampules.
Antiseptic applicators or swabs.
Burn dressing.
Eye dressing.
Wire or thin board splints.
Forceps and tourniquet.

(c) The contents of the first aid kit shall be checked before being sent out on each job to ensure that all expended items have been replaced.

(d) There shall be available for each vessel being worked one Stokes basket stretcher, or its equivalent, permanently equipped with bridles for attaching to the hoisting gear, except that there need be no more than two stretchers on each pier. Stretchers shall be kept close to the vessels.

(e) The employer shall ensure that there is in the vicinity of each vessel being worked at least one U.S. Coast Guard approved 30-inch lifering with not less than 90 feet of line attached and at least one portable or permanent ladder which will reach from the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that

he is working the vessel. When working a barge, scow, raft, lighter, log boom, or carfloat alongside a ship, a U.S. Coast Guard approved 30-inch lifering, with not less than 90 feet of line, shall be provided either on the floating unit itself or aboard the ship in the immediate vicinity of each floating unit being worked.

(f) When employees are working on log booms or cribs, lifelines shall be furnished and hung overside to the water's edge.

§ 1918.97 Qualification of machinery operators.

(a) Only those employees considered by the employer to be competent by reason of training or experience, and who understand the signs, notices, and operating instructions and are familiar with the signal code in use shall be permitted to operate a crane, winch or other power-operated hoisting apparatus, or any power-operated vehicle, or to give signals to the operator of any hoisting apparatus.

(b) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate him shall be permitted to operate a crane, winch or other power-operated hoisting apparatus or a power-operated vehicle.

(c) No minor under 18 years of age shall be employed in occupations involving the operation of any power-operated hoisting apparatus or assisting in such operations by performing work such as hooking on or landing drafts, rigging gear, etc.

§ 1918.98 Grain fitting.

(a) Where employees are engaged in work on longitudinal bulkheads or shifting boards (other than longitudinal bulkheads of feeders) at a distance of eight (8) feet or more above any ceiling, tank top or deck, the following shall apply:

(1) If working off portable straight ladders the provisions of § 1918.25(f) of this part shall apply.

(2) If working off staging, any lumber used in the construction thereof shall be sound, straight grained, free from cross grain, shakes, and large, loose or dead knots. It shall also be free from dry rot, large checks, worm holes or other defects which impair its strength. Platform planking used as a work surface shall not be less than 2 × 10 lumber and the width of the platform shall not be less than 18 inches.

(3) If working from other elevated positions, employees shall be protected from falling by safety belt and lifeline or other equivalent protection.

(b)(1) When grain fitting operations are in progress in the square of an intermediate deck, the hatch covering at that deck shall be such as to cover the hatch except for the minimum open spaces necessary to perform the work.

(2) When coverings used to provide a temporary work surface are other than the vessels' hatch covers placed in their normal positions, they shall be of adequate strength and so placed or secured that they cannot be accidentally dislodged.

(c) When the erection of grain fittings requires employees to work on surfaces immediately adjacent to or between open deep tanks, either the deep tank covers shall be put in place, the opening covered by a net, or the opening guarded by a line, railing or net rigged as a railing, or by other suitable means.

(d) When removing hatch coverings from the interiors of feeders at the completion of their construction, or when removing or replacing hatch coverings in the interiors of feeders for any purpose at other times, employees engaged in this work shall be protected from falling by the use of adequate individual lifelines, properly tended, or by nets or other means suitable for the purpose. Except for the minimum open spaces necessary, hatch coverings shall not be removed within feeders under construction until such construction is completed.

(e) When repair or other work is carried out in the interior of an existing feeder and circumstances do not allow the covering of the hatch at that deck, employees shall be protected from falling by the use of adequate individual lifelines, properly secured and if necessary tended, or by nets or other means suitable for the purpose.

(f) Such other sections of this part are applicable to grain fitting operations shall be adhered to.

918.99 Commercial diving operations.

Commercial diving operations shall subject to Subpart T of Part 1910, 1910.401 through 1910.441. of this apter.

FR 37673, July 2, 1977]

Subpart J—Personal Protective Equipment

918.101 Eye protection.

a) When, because of the nature of e cargo being handled, an eye zard from flying particles or heavy st exists, employees shall be protect- by eye protection equipment meet- the specifications prescribed by e American National Standards NSI) Practice for Occupational and ucational Eye and Face Protection, 7.1 (1968).

b) Eye protection equipment shall maintained in good condition.

c) Eye protection equipment which s previously been used shall be aned and disinfected before it is ued by the employer to another em- yee.

d) Employees who wear corrective ectacles while engaged in eye haz- lous work shall be protected by eye otection equipment of a type which n be worn over personal spectacles, cept that glasses with prescription und safety lenses may be worn in u of cover goggles when such glasses ovide suitable protection against the zard involved.

918.102 Respiratory protection.

a) *General.* (1) Except as provided paragraph (c)(3) of this section, res- atory protective equipment re- red by this part shall carry U.S. reau of Mines approval for the use ended. In cases where the U.S. reau of Mines does not issue ap- val against the particular hazard ipment shall be acceptable to the upational Safety and Health Ad- inistration. Respiratory protective ipment shall be used only for the pose intended and no modification he equipment shall be made.

(2) Respiratory protective equipment shall be inspected regularly and maintained in good condition. Gas mask canisters and chemical cartridges shall be replaced as necessary so as to provide complete protection. Mechanical filters shall be cleaned or replaced as necessary so as to avoid undue resistance to breathing.

(3) Respiratory protective equipment which has been previously used shall be cleaned and disinfected before it is issued by the employer to another employee.

(4) Employees required to use respiratory protective equipment shall be instructed in its use.

(b) *Protection against gaseous contaminants not immediately dangerous to life.* (1) In concentrations of ammonia of less than 3 percent, or of other gases less than 2 percent, by volume, a canister type gas mask equipped with the proper type of canister shall be used. Different canisters are approved for use against the following gases and groups of gases: Acid gases, hydrocyanic acid gas, chlorine gas, organic vapors, ammonia gas, carbon monoxide or combinations of the above.

(2) In low concentrations (less than 0.1 percent by volume, but above the Threshold Limit Value of the gas), a chemical cartridge respirator equipped with the type of cartridge approved for use against the particular gases or groups of gases listed in subparagraph (1) of this paragraph shall be used.

(c) *Protection against dusts.* (1) For protection against pneumoconiosis producing dusts, a respirator equipped with the type of filter approved for such purpose shall be used.

(2) For protection against toxic dusts, a respirator equipped with the type of filter approved for such purpose shall be used.

(3) For protection against nuisance dusts, a respirator equipped with the type of filter required in paragraph (c)(1) of this section or a suitable dust mask shall be used.

§ 1918.103 Protective clothing.

(a) When employees are handling cargo which, due to ruptured, leaking or inadequate containers, may cause burns, skin irritation or be otherwise

injurious to health, they shall be protected by suitable protective clothing.

(b) Protective clothing which has been previously worn shall be cleaned and disinfected before it is issued by the employer to another employee.

§ 1918.104 Foot protection.

The employer shall arrange through means, such as vendors or local stores, or otherwise, to make safety shoes readily available to all employees, and shall encourage their use.

§ 1918.105 Head protection.

(a) Employees shall be protected by protective hats meeting the specifications contained in the American National Standard Safety Requirements for Industrial Head Protection, Z89.1 (1969).

(b) Protective hats which have been previously worn shall be cleaned and disinfected before they are issued by the employer to another employee.

§ 1918.106 Protection against drowning.

(a) *Personal flotation devices.* Any personal flotation device shall be approved by the United States Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or Type V PFD, or their equivalent, pursuant to 46 CFR Part 160 (Coast Guard Life-saving Equipment Specifications) and 33 CFR 175.23 (Coast Guard table of devices equivalent to personal flotation devices).

(b) Employees working on log booms shall be protected by personal flotation devices meeting the requirements of § 1918.106(a).

(c) Except when engaged in loading or discharging ocean going vessels, employees walking or working on the decks of barges on the Mississippi River System and the Gulf Intracoastal Waterway shall be protected by personal flotation devices meeting the requirements of § 1918.106(a).

(d) Personal flotation devices shall be maintained in good condition and shall be considered unserviceable when damaged so as to affect their buoyant properties or capability of being fastened.

APPENDIX I—CARGO GEAR REGISTER AND CERTIFICATES

The cargo gear register designated Form I by the ILO, is a booklet containing instructions and forms on which the following information is recorded:

Part I. Annual Inspection and Quadrennial Thorough Examination of Derricks and Permanent Attachments (including Bridle Chains) to the Derricks, Masts and Decks.

Part II. Annual Thorough Examination of Cranes, Winches, Hoists, and Accessory Gear other than Derricks and Permanent Attachments Thereto.

Part III. Annual Thorough Examination of Gear which is Exempt from Heat Treatment.

Part IV. Heat Treatment of Chains, Rings, Hooks, Shackles and Swivels which Require such Treatment.

THE FOLLOWING ARE THE SAMPLE FORMS OF CERTIFICATES RECOMMENDED BY THE ILO:

Test Certificate No..... Form No. 2

CERTIFICATE OF TEST AND EXAMINATION OF WINCHES, DERRICKS AND THEIR ACCESSORY GEAR, BEFORE BEING TAKEN INTO USE

(Form prescribed by).....

Name of ship on which machinery is fitted.....

(1)—Situation and description of machinery and gear, with distinguishing number or mark (if any)	(2)—Angle to the horizontal of derrick boom while the load was applied (degrees)	(3)—Proof load applied (tons)	(4) Safe working load at the angle shown in column 2 (tons)

(5) Name and address of public service, association, company or firm making the test and examination.....

.....

(6) Position of signatory in public service, association, company, or firm.....

.....

I certify that on the —— day of ————, 19——, the above machinery, together with its accessory ear was tested by a competent person in the manner set forth on the reverse side of this certificate; that a areful examination of the said machinery and gear by a competent person after the test showed that it ad withstood the proof load without injury or permanent deformation; and that the safe working load of he said machinery and gear is as shown in column 4.

Date).....

(Signature) .....

NOTE: "Competent person" means a person acceptable as such to the competent authority in the country f issue of the certificate.

INSTRUCTIONS

[Reverse of Form 2]

Every winch with the whole of the gear accessory thereto (including derricks, goosenecks, eye plates, eye olts, or other attachments) shall be tested with a proof load which shall exceed the safe working load as ollows:

Safe working load	Proof load
o to 20 tons	25 percent in excess.
-50 tons	5 tons in excess.
ver 50 tons	10 percent in excess.

The proof load shall be lifted with the ship's normal tackle with the derrick at an angle which should not e more than 15 degrees to the horisontal, or, when this is impracticable, at the lowest practicable angle. he angle at which the test was made should be stated in the certificate of test. After the proof load has een lifted, it should be swung as far as possible in both directions.

As a general rule, all tests should be carried out in this way by dead load, and no exception should be llowed in the case of gear on new ships. In the case of replacements or renewals, however, spring or hy- aulic balances may be used where dead loads are not available. Where a spring or hydraulic balance is sed it shall be accurate, and the test should not be regarded as satisfactory unless the indicator remains nstant for a period of at least five minutes.

After being tested as aforesaid, all lifting machinery, with the whole of the gear accessory thereto shall e examined to see whether any part has been injured or permanently deformed by the test.

The safe working load shown in column 4 is applicable only to a swinging derrick. When using fixed der- cks, such as "union purchase" rigs, the safe working load should as a general rule be reduced; in any case, hould be determined with due regard to the actual conditions of use.

n the case of heavy derricks, care should be taken that the appropriate shrouds and stays are rigged.

NOTE: The expression "ton" means a ton of 1,000 kg or 2,200 lb.

Test Certificate No..... Form No. 3

CERTIFICATE OF TEST AND EXAMINATION OF CRANES OR HOISTS, AND THEIR ACCESSORY GEAR, BEFORE BEING TAKEN INTO USE

(Form prescribed by).....

Name of ship on which machinery is fitted.....

(1)—Situation and description of crane or hoist, with distinguishing number or mark (if any)	(2)—For jib cranes radius at which the proof load was applied	(3)—Proof load applied (tons)	(4)—Safe working load (for jib cranes at radius shown in column 2) (tons)

(5) Name and address of public service, association, company or firm making the test and examination.....

.....

(6) Position of signatory in public service, association, company or firm .....

.....

I certify that on the —— day of ———— 19——, the above machinery, together with its accessory gear, was tested by a competent person in the manner set forth on the reverse side of this certificate; that a careful examination of the said machinery and gear by a competent person after the test showed that it had withstood the proof load without injury or permanent deformation, and that the safe working load of the said machinery and gear is as shown in column 4.

Date..... (Signature).....

NOTE: "Competent person" means a person acceptable as such to the competent authority in the country of issue of the certificate.

INSTRUCTIONS

[Reverse of Form 3]

Every crane and other hoisting machine, with its accessory gear shall be tested with a proof load which shall exceed the safe working load as follows:

Safe working load	Proof load
Up to 20 tons	25 percent in excess.
20 to 50 tons	5 tons in excess.
Over 50 tons	10 percent in excess.

The proof load shall be lifted and swung as far as possible in both directions. If the jib of the crane has a variable radius, it should be tested with a proof load, as defined above, at the maximum and minimum radii of the jib. With hydraulic cranes where, owing to the limitation of pressure, it is impossible to lift a load 25 percent in excess of the safe working load, it will be sufficient to lift the greatest possible load.

After being tested, each crane or hoist, with the whole of the gear accessory thereto, shall be examined to see whether any part has been injured or permanently deformed by the test.

NOTE: The expression "ton" means a ton of 1,000 kg or 2,200 lb.

st Certificate No..... Form No. 4

ERTIFICATE OF TEST AND EXAMINATION OF CHAINS, RINGS, HOOKS, SHACKLES, SWIVELS, AND PULLEY BLOCKS

orm prescribed by).....

(1)—Distinguishing number or mark (if any)	(2)—Description of gear[1]	(3)—No. tested	(4)—Date of test	(5)—Proof load applied (tons)	(6)—Safe working load (tons)

The dimensions of the gear, the type of material of which it is made and, where applicable, the heat treatment received in ufacture should be stated (unless Form No. 6 is used for the purpose).

) Name and address of makers or suppliers.....

) Name and address of public service, association, company or firm making the test and examination .....

) Position of signatory in public service, association, company or firm .....

certify that on the —— day of —————— 19——, the above gear was tested and examined by a compe- person in the manner set forth on the reverse side of this certificate, that the examination showed the said gear withstood the proof load without injury or deformation; and that the safe working load he said gear is as shown in Column 6.

te)..... (Signature).....

OTE: "Competent person" means a person acceptable as such to the competent authority in the country sue of the certificate.

INSTRUCTIONS

(Reverse of Form 4)

hains, rings, shackles and other loose gear (whether accessory to a machine or not) shall be tested with oof load equal to that shown against the article in the following table:

Article of gear	Proof load
n, ring, hook, shackle or swivel	100 percent in excess of the safe working load.
y blocks:	
Single-sheave block	300 percent in excess of the safe working load.
Multiple-sheave block with safe working load up to and including 20 tons.	100 percent in excess of the safe working load.
Multiple-sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple-sheave block with safe working load over 40 tons	50 percent in excess of the safe working load.
nd chains used with hand-operated pulley blocks and rings, hooks, ckles or swivels permanently attached thereto.	50 percent in excess of the safe working load.
-operated pulley blocks used with pitched chains and rings, hooks, ckles or swivels permanently attached thereto.	50 percent in excess of the safe working load.

ter being tested, all the gear shall be examined, the sheaves and the pins of the pulley blocks being ved for the purpose, to see whether any part has been damaged or permanently deformed by the test.

TE: The expression "ton" means a ton of 1,000 Kg or 2,200 lb.

Test Certificate No..... Form No. 5

CERTIFICATE OF EXAMINATION AND TEST OF WIRE ROPE BEFORE BEING TAKEN INTO USE

(Form prescribed by).....

Name and address of maker or supplier of rope.....

.....

Circumference/diameter* of rope.....
Number of strands.....
Number of wires per strand.....
Lay.....
Quality of wire.....
Date of test of sample of rope.....
Load at which sample broke.....
Safe working load, subject to any stated qualifying conditions such as minimum pulley diameter, direct tensile load, etc.....
Name and address of public service, association, company or firm making the examination and test.....

.....

Position of signatory in public service, association, company or firm making the examination and test.....

.....

I certify that the above particulars are correct, and that the examination and test were carried out by a competent person.

(Date)..... (Signature).....

NOTE: "Competent person" means a person acceptable as such to the competent authority in the country of issue of the certificate.

*Delete what does not apply.

INSTRUCTIONS

[Reverse of Form No. 5]

Wire rope shall be tested by sample, a piece being tested to destruction, and the safe working load of running ropes shall not exceed one-fifth of the breaking load of the sample tested.

Test Certificate No.....

FORM No. 6

CERTIFICATE OF HEAT TREATMENT OF CHAINS, RINGS, HOOKS, SHACKLES AND SWIVELS WHICH REQUIRE SUCH TREATMENT

(Form prescribed by).....

(1)—Distinguishing number or mark	(2)—Description of gear[1]	(3)—Number of certificate of test and examination	(4)—Number heat treated	(5)—Date of heat treatment	(6)—Nature of heat treatment given	(7)—Defects found at inspection after heat treatment

[1]The dimensions of the gear, the type of material of which it is made, and the heat treatment received in manufacture should be stated.

(8) Name and address of public service, association, company or firm carrying out the heat treatment and inspection .....

(9) Position of signatory in public service, association, company or firm .....

I certify that on the date shown in Column 5, the gear referred to in Columns 1 to 4 was heat-treated (indicated in column 6) under my supervision; that after being so heat-treated every article was carefully inspected, and that no defects affecting its safe working condition were found other than those indicated in Column 7.

(Date)..... (Signature).....

NOTES: "Competent person" means a person acceptable as such to the competent authority in the country of issue of the certificate.

For requirements as to heat treatment, see reverse side.

INSTRUCTIONS

ANNEALING

[Reverse of Form No. 6]

Chains (other than bridle chains attached to derricks or masts), rings, hooks, shackles and swivels made of wrought iron, used in hoisting or lowering, shall be annealed at the following intervals.

	If used on lifting machinery driven by power	If used solely on lifting machinery worked by hand
Half-inch (12.5 mm) and smaller chains, rings, hooks, shackles and swivels in general use	6 months	12 months
All other chains, rings, hooks, shackles and swivels in general use	12 months	2 years

OTHER HEAT TREATMENT

Chains, rings, hooks, shackles and swivels made of material other than wrought iron shall be heat treated in accordance with procedures approved by the competent authority.

Test Certificate No..... Form No. 7

CERTIFICATE OF ANNUAL THOROUGH EXAMINATION OF GEAR WHICH DOES NOT REQUIRE TO BE PERIODICALLY HEAT TREATED

(Form prescribed by).....

(1)—Distinguishing number or mark	(2)—Description of gear[1]	(3)—Number of certificate of test and examination	(4)—Remarks

[1]The dimensions of the gear, the type of material of which it is made, and the heat treatment received in manufacture should be stated.

(5) Name and address of public service, association, company or firm making the test and examination.....

.....

(6) Position of signatory in public service, association, company or firm.....

.....

I certify that on the —— day of ———— 19——, the above gear was thoroughly examined by a competent person, and that no defects affecting its safe working condition were found other than those indicated in Column 4.

(Date)..... (Signature).....

NOTES: This certificate is optional. The above particulars may be entered in Part III of the Register (Form No. 1).

"Competent person" means a person acceptable as such to the competent authority in the country of issue of the certificate.

For list of gear not required to be heat-treated and definition of "thorough examination", see reverse side.

INSTRUCTIONS

[Reverse of Form No. 7]

Gear not required to be heat treated, but required to be thoroughly examined by a competent person once at least in every twelve months.

Plate-link chains.

Pitched chains.

Rings, hooks, shackles and swivels permanently attached to pitched chains, pulley blocks or weighing machines.

Hooks and swivels having ball bearings or other case-hardened parts.

Bordeaux connections.

Other gear exempted by the competent authority, as follows:

.....

.....

NOTE: "Thorough examination" means a visual examination, supplemented if necessary by other means such as a hammer test, carried out as carefully as conditions permit in order to arrive at a reliable conclusion as to the safety of the parts examined, if necessary for the purpose, parts of the machines or gear must be dismantled.

EDITORIAL NOTE: This listing is provided for informational purposes only. It is compiled and kept up-to-date by the Department of Labor.

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SUBJECT INDEX FOR 29 CFR 1919—GEAR CERTIFICATION

AUTHORITY: Sec. 41, Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941); secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable.

SOURCE: 39 FR 22096, June 19, 1974, unless otherwise noted.

Subpart A—General Provisions

§ 1919.1 Purpose and scope.

(a) The regulations in this part implement §§ 1918.12(c) and (d)(3) and 1918.13 of this chapter. They provide procedures and standards governing accreditation of persons by the Occupational Safety and Health Administration, U.S. Department of Labor, for the purpose of certificating vessels' cargo gear and shore-based material handling devices, and the manner in which such certification shall be performed.

(b) Accreditation is not required, and the regulations of this part are not applicable, under the following circumstances:

(1) When cargo gear certification is performed for vessels inspected and certificated under the authority of the U.S. Coast Guard,[1] or for foreign vessels certificated under the requirements of a foreign nation or by persons acceptable for certification purposes by a foreign nation.

(2) When cargo gear certification is performed for shore-based material handling devices under standards established and enforced by the States wherein the devices are located, or by political subdivisions delegated this responsibility by the States, provided such standards meet the requirements of § 1918.13 (b)(2) of this chapter.

(c) Persons not required to be accredited for gear certification purposes, as set forth in paragraph (b) of this section, may, nevertheless, apply for and receive accreditation by the Administration. The appropriate subparts of this part shall apply to persons accredited pursuant to this paragraph except insofar as exemptions may be granted.

[1] Jurisdiction of the U.S. Coast Guard extends to matters within the scope of title 52 of the Revised Statutes and Acts supplementary or amendatory thereto (46 U.S.C. 1-1388, passim); to matters within the regulatory authority of the U.S. Coast Guard under the provisions of the Espionage Act of June 15, 1917, as amended (40 Stat. 220; 50 U.S.C. 191 et seq.; 22 U.S.C. 401 et seq.) or to matters within the regulatory authority of the U.S. Coast Guard under section 4(e) of the Outer Continental Shelf Lands Act of Aug. 7, 1953 (67 Stat. 462; 43 U.S.C. 1333).

§ 1919.2 Definition of terms.

(a) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, including special-purpose floating structures not primarily designed for or used as a means of transportation on water.

(b) Except as otherwise noted, "cargo gear", as used in Subparts B through E of this part, includes that gear forming a part of a vessel's equipment which is used for the handling of cargo other than bulk liquids, but does not include gear which is used only for handling or holding hoses, handling ships' stores, or handling the gangway, or boom conveyor belt.

(c) With reference to equipment covered by this part—

(1) "Derrick" means:

(i) When applied to vessels' cargo handling gear, a mechanical device for lifting, including a boom which is suspended at its head by a topping lift from a mast, king post, or similar structure, controlled in the horizontal plane by vangs, and used either singly or in pairs with married falls;

(ii) When applied to shore-based material handling devices, a mechanical device intended for lifting, with or without a boom supported at its head by a topping lift from a mast, fixed A frame, or similar structure. The mast or equivalent member may or may not be supported by guys or braces. The boom, where fitted, may or may not be controlled in the horizontal plane by guys (vangs). The term includes shear legs.

(2) "Crane" means a mechanical device, intended for lifting or lowering a load and moving it horizontally, in which the hoisting mechanism is an integral part of the machine. A crane may be a fixed or mobile machine.

(3) "Bulk cargo spout" means a spout which may or may not be telescopic and may or may not have removable sections, but is suspended over the vessel from some overhead structure by wire rope or other means. Such a spout is often used with a

'thrower" or "trimming machine". A grain loading spout is an example of those covered by this definition.

(4) "Bulk cargo sucker" means a pneumatic conveyor which utilizes a spoutlike device, which may be adjustable vertically and/or laterally, and which is suspended over a vessel from some overhead structure by wire rope or other means. An example of an installation of this nature is the "grain sucker" used to discharge grain from barges.

(d) "Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or his authorized representative.

(e) "Administration" means the Occupational Safety and Health Administration, U.S. Department of Labor.

(f) "Person" includes any individual, partnership, corporation, agency, association, or organization.

(g) "Competent person" means:

(1) An individual qualified to perform gear certification functions with respect to vessels' cargo handling gear, as specifically set forth in § 1919.37.

(2) An individual qualified under the provisions of Subparts F and G of this part to perform gear certification functions with respect to shore-based material handling devices.

(h) "Ton" means a ton of 2,240 pounds when applied to vessels' cargo handling gear, and a ton of 2,000 pounds when applied to shore-based material handling devices or to shore-type cranes permanently mounted aboard barges or other vessels employed in domestic trade and designed on the basis of the 2,000-pound ton. Capacity ratings may be stated in pounds.

(i) "Nondestructive examination" means examination of structure or parts by electronic, ultrasonic, or other nondestructive examination suitable for the purpose.

Subpart B—Procedure Governing Accreditation

1919.3 Application for accreditation.

(a) *Application.* Any person seeking accreditation shall file an original and duplicate copy of an application for accreditation with the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, Washington, D.C. 20210, on a form provided by the Administration for this purpose. Each application shall be signed and certified by the applicant and, if the applicant is an agency or organization, by a responsible officer of such agency or organization.

(b) *Contents of application.* The application form shall include the following information:

(1) A statement detailing the applicable types of work performed by the applicant in the past, noting the amount and extent of such work performed within the previous three years, listing representative vessels involved, and including representative job orders, if available, or equivalent evidence;

(2) Descriptive details concerning any testing instruments and heat treatment furnaces which are to be used in conducting required tests or heat treatments. Test reports indicating that instruments meet the accuracy standards set forth in this part shall be included;

(3) A list setting forth the ports in which applicant currently conducts his business as well as those in which he proposes to conduct gear certification activities;

(4) A list of the applicant's responsible qualified personnel, both supervisory and managerial and including any surveyors, with resumes of their individual experience in the testing, examination, inspection and heat treatment of cargo gear. Such list shall include any branch office personnel or surveyors appointed to act in the applicant's behalf in any of the ports of the United States: *Provided, however,* That where the submission of individual resumes would be unduly burdensome because of the large number of persons engaged in the applicant's behalf, the applicant, after stating this fact, need only submit a list of its personnel together with a detailed statement of the qualifications upon which the appointment of surveyors is based;

(5) A detailed schedule of the fees proposed to be charged for the various gear certification services;

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(6) Evidence of financial stability;

(7) Names of at least three business references who will furnish information regarding work performed by applicant;

(8) Any additional information the applicant deems to be pertinent.

§ 1919.4 Action upon application.

(a) Upon receipt of an application for accreditation, the Assistant Secretary shall approve or deny the application. The Assistant Secretary may conduct an investigation, which may include a hearing, prior to approving or denying an application. To the extent he deems appropriate, the Assistant Secretary may provide an opportunity to other interested persons to present data and views on the application prior to approval or denial.

(b) Any application which fails to present the information required by the prescribed form may be returned to the applicant with a notation of deficiencies and without prejudice to submission of a new or revised application.

(c) If the application is approved, notice of approval shall be mailed to the applicant. If the application is denied, notice of such denial shall be mailed to the applicant and such denial shall be without prejudice to any subsequent application except where such action is deemed to be in the public interest. In the event an application is denied with prejudice, the provisions of § 1919.9 shall be applicable.

(d) A copy of the notice of accreditation shall be kept on file by applicant at the applicant's place of business.

§ 1919.5 Duration and renewal of accreditation.

The period of accreditation shall not exceed three years. Applications for renewal of accreditation shall be made on the same form as described in § 1919.3. No accreditation shall expire until action on an application for renewal shall have been finally determined, provided that such application has been properly executed in accordance with § 1919.3 and filed with and received by the Assistant Secretary not less than 15 nor more than 60 days prior to the expiration date. A final determination means either the approval or initial denial of the application for renewal. The procedure specified in § 1919.4 shall be applicable to all applications for renewal.

§ 1919.6 Criteria governing accreditation to certificate vessels' cargo gear.

(a)(1) A person applying for accreditation to issue registers and pertinent certificates, to maintain registers and appropriate records, and to conduct initial, annual and quadrennial surveys shall not be accredited unless he is engaged in one or more of the following activities:

(i) Classification of vessels;

(ii) Certification of vessels' cargo gear;

(iii) Shipbuilding or ship repairing, or both insofar as related to work on vessels' cargo handling gear;

(iv) Unit and loose gear testing of vessels' cargo handling gear.

(2) Applicants for accreditation under paragraph (a)(1) of this section for operations in coastal or Great Lakes ports who come within paragraph (a)(1) (ii) or (iv) shall not be accredited unless they conduct at least 1,500 hours of cargo gear certification work per year.

(b) A person applying for accreditation to carry out tests of loose gear or wire rope, or both, or to carry out heat treatments, and to issue the related certificates, shall be engaged in one or both of the following activities:

(1) Testing of loose gear or wire rope, or both;

(2) Heat treatment of chains and loose cargo gear.

(c) (1) A person applying for accreditation shall be staffed by individuals technically qualified to conduct the inspections and examinations and to conduct or supervise tests and heat treatments prescribed in this part. Any representatives, agents or surveyors acting on behalf of a person applying for accreditation in ports in which such operations are conducted shall be similarly qualified.

(2) Accreditation to conduct such nondestructive examination as may be a part of any certification activity may be granted to applicants found compe-

tent and equipped to carry out this activity.

(d) Except as noted in § 1919.1(c), and unless exemptions are granted under § 1919.10(h), a person applying for accreditation as specified in paragraph (a) of this section shall be prepared to carry out all of the requirements of Subparts C, D, and E, of this part except that loose gear and wire rope tests and heat treatments may be carried out by the manufacturer of the gear concerned or by another person accredited specifically for this purpose.

(e) A person applying for accreditation shall have a satisfactory record of performance, and shall be in sound financial condition.

§ 1919.7 Voluntary amendment or termination of accreditation.

The accreditation of any person may be voluntarily amended or terminated upon written request filed with the Assistant Secretary.

§ 1919.8 Suspension or revocation of accreditation.

The Assistant Secretary may suspend or revoke the accreditation of any person for cause. Except in cases of willfulness or cases in which the public interest requires otherwise, before any accreditation is suspended or revoked, facts or conduct which may warrant such action shall be called to the attention of the person involved in writing and that person shall be afforded an opportunity to achieve or demonstrate appropriate compliance.

§ 1919.9 Reconsideration and review.

(a) Any person aggrieved by the action of the Assistant Secretary or his authorized representative in denying, granting, suspending or revoking an accreditation under this part may within 15 days after such action, (1) file a written request for reconsideration thereof by the Assistant Secretary or the authorized representative of the Assistant Secretary who made the decision in the first instance, or (2) file a written request for review of the decision by the Assistant Secretary or an authorized representative of the Assistant Secretary, who has taken no part in the action which is the subject for review.

(b) A request for reconsideration shall be granted where the applicant shows that there is additional evidence which may materially affect the decision and that there were reasonable grounds for failure to adduce such evidence in the original proceedings.

(c) Any person aggrieved by the action of the Assistant Secretary or authorized representative of the Assistant Secretary in denying a request for reconsideration may, within 15 days after the denial of such request, file with the Assistant Secretary or his authorized representative a written request for review.

(d) Any person aggrieved by the reconsidered determination of the Assistant Secretary or authorized representative of the Assistant Secretary, may within 15 days after such determination, file with the Assistant Secretary a written request for review.

(e) A request for review shall be granted where reasonable grounds for the review are set forth in the request.

(f) If a request for reconsideration or review is granted, all interested persons shall be afforded an opportunity to present their views.

(g) No cargo gear certification function shall be performed by any person seeking reconsideration or review under this section pending the final decision with respect to such reconsideration or review.

Subpart C—Duties of Persons Accredited to Certificate Vessels' Cargo Gear

§ 1919.10 General duties; exemptions.

(a) Except as noted in § 1919.1 and in paragraph (h) of this section, the requirements set forth in Subparts D and E of this part shall be strictly adhered to in all testing, examinations, inspections, and heat treatments.

(b) Supervision of all testing, examinations, inspections, and heat treatments shall be carried out only by such persons as are listed in the application for accreditation, or subsequent supplements thereto, submitted pursuant to this part.

(c) The certificates issued by an accredited person shall be signed and all register entries made only by an authorized agent of such accredited person. No certification shall be issued until any deficiencies considered by the accredited person to constitute a currently unsatisfactory condition have been corrected. Replacement parts shall be of equal or better quality as original equipment and suitable for the purpose. In the event deficiencies remain uncorrected and no certification may therefore be issued, the accredited person shall inform the nearest District Office of the Administration of the circumstances.

(d) Dynamometers or other recording test equipment owned by an accredited person shall have been tested for accuracy within the six months next preceding application for accreditation or renewal of same. Such test shall be performed with calibrating equipment which has been checked in turn so that indications are traceable to the National Bureau of Standards. A copy of test reports shall accompany the application. Where test equipment is not the property of the accredited person, that person shall not issue any certificate based upon the use of such equipment unless its owner has made available a certificate of accuracy based on the requirements of this paragraph, obtained within 1 year prior to such use and stating the errors of the equipment. Reasonable standards of accuracy shall be met and proof loads adjusted as necessary.

(e) An accredited person shall, upon request, provide the nearest local office of the Administration with advance information as to scheduled testing or of such other functions as are performed and facilitate the Administration's observation of any such activities as it may desire to witness: *Provided, however,* That tests need not be delayed, except when specifically requested by the Administration under unusual circumstances.

(f) All cargo gear registers or certificates issued by an accredited person shall be made on forms prescribed or approved by the Administration.

(g) Unless otherwise instructed by the Assistant Secretary in specific instances, any person accredited under § 1919.6(a) shall accept certificates, relating to loose gear or wire rope tests or to heat treatments which are issued by the manufacturer of the gear concerned, by another person accredited specifically by the Assistant Secretary for this purpose, or by any other person whose certificates are acceptable to the Administration. Such certificates shall either be attached as a part of the vessel's certification or shall be used as the basis for the issuance of the accredited person's own loose gear, wire rope, or heat treatment certificates. In the latter case, the original certificates shall be kept on file by the accredited person as part of the permanent record of the vessel concerned.

(h) In case of practical difficulties or unnecessary hardships, the Assistant Secretary in his discretion may grant exemptions from any provision of Subparts C, D, and E of this part.

§ 1919.11 Recordkeeping and related procedures concerning records in custody of accredited persons.

(a) An accredited person shall maintain records of all work performed under Subparts D and E of this part.

(b) An accredited person shall maintain a continuous record of the status of the certification of each vessel issued a register by such person.

(c) The records required in paragraphs (a) and (b) of this section shall be available for examination by the Assistant Secretary.

(d) When annual or quadrennial tests, inspections, examinations, or heat treatments are performed by an accredited person, other than the person who originally issued the vessel's register, such accredited person shall furnishcopies of any certificates issued and information as to register entries to the person originally issuing the register.

(e) An accredited person shall inform the nearest local office of the Administration whenever a vessel is initially certificated under these regulations and a register in the prescribed form has been issued.

(f) A copy of each certificate relating to unit tests or thorough examinations, except those issued by the man-

ufacturer and those issued by accredited persons outside of the United States, shall be sent to the nearest local office of the Administration within 10 days after issuance. Such records shall form a part of the Administration's file on the accredited person.

(g) An accredited person shall promptly notify the nearest local office of the Administration with respect to any changes in technical personnel, in fee schedules in geographical areas in which operations are conducted, or other pertinent substantial changes in its organization or operations.

§ 1919.12 Recordkeeping and related procedures concerning records in custody of the vessel.

(a) A fully completed and up-to-date register shall be kept in the form prescribed or approved by the Administration, giving the particulars required with respect to:

(1) The inspections and thorough examinations required by § 1919.15(a) and (b).

(2) The thorough examinations required by § 1919.15(c).

(3) The thorough examinations required by § 1919.17.

(4) The heat treatment required by § 1919.16 (a) and (b), and § 1919.19.

(b) Certificates in the form prescribed or approved by the Administration shall be kept up-to-date, be attached to the register, and shall contain the particulars required with respect to:

(1) The testing and examinations required by §§ 1919.14, 1919.15(a), and 1919.19.

(2) The heat treatment required by § 1919.16 and 1919.19.

(c) The certificates and entries in the register shall be signed by a person qualified under § 1919.37.

(d) Adequate means shall be provided to enable persons examining the register, or any certificate attached hereto, to identify items of cargo gear referred to therein. Small items of gear, such as shackles, shall bear a mark to indicate that they have been initially tested.

(e) Records shall be kept aboard vessels identifying wire rope or articles of loose gear obtained from time to time and required to be certificated under the regulations of this part.

(f) An accredited person shall instruct the vessel's officers, or the vessel's operator if the vessel is unmanned, that the vessel's register and certificates shall be preserved for at least 4 years after the date of the latest entry except in the case of nonrecurring test certificates concerning gear which is kept in use for a longer period, in which event the pertinent certificates shall be retained so long as that gear is continued in use.

(g) In cases where derricks, spouts, suckers, or cranes are mounted permanently aboard barges which remain in domestic inland waters service, the certification documentation shall comply with the provisions of § 1919.90 of this part.

Subpart D—Certification of Vessels' Cargo Gear

§ 1919.13 General.

(a) Except as noted in § 1919.1 and as provided in exemptions under § 1919.10(h), certification performed by accredited persons shall conform to the requirements contained in this subpart.

(b) Safe working loads assigned to assembled units of gear, shall be based on applicable design criteria acceptable to the accredited person. Where no design data on which to base a rating is obtainable, the safe working load ratings assigned shall be based on the owner's information and warranty that those so assigned are correct. Unit test certificates shall state the basis for any such safe working load assignment.

§ 1919.14 Initial tests of cargo gear and tests after alterations, renewals or repairs.

(a) (1) Before being taken into use, hoisting machines, fixed gear aboard vessels accessory thereto, and loose gear and wire rope used in connection therewith shall be tested and examined and the safe working load thereof certified in the manner set forth in Subpart E of this part.

(2) Replacement or additional loose gear and wire rope obtained from time to time shall also be tested and examined in the manner set forth in paragraph (a)(1) of this section. However, the replacement of a component part of an article of loose gear such as a sheave, pin, or bushing does not require a new test certificate as long as the new component at least equals in all particulars the part replaced.

(b) In the case of untested gear which has been in use, an initial test in conformance with paragraph (a)(1) of this section shall be carried out: *Provided, however,* That existing standing rigging and wire rope will not be required to be tested but shall be thoroughly examined to ascertain its fitness for continued use in conformance with the requirements of §§ 1919.24 and 1919.25.

(c) In the case of important alterations or renewals of the machinery and gear and also after repairs due to failure of or damage to other than loose components, a test as required in paragraph (a)(1) of this section shall be carried out.

(d) If the operation in which cargo gear is engaged never utilizes more than a fraction of the safe working load rating, the owner may, at his option, have said gear certificated for, and limited in operation to, a lesser maximum safe working load: *Provided, however,* That the gear concerned is physically capable of operation at the original load rating and the load reduction is not for the purpose of avoiding correction of any deficiency.

(e) In no case shall safe working loads be increased beyond the original design limitations unless such increase is based on engineering calculations by or acceptable to the accredited certification agency, and all necessary structural changes are carried out.

§ 1919.15 Periodic tests, examinations and inspections.

After being taken into use, every hoisting machine, all fixed gear aboard vessels accessory thereto and loose gear used in connection therewith shall be tested, thoroughly examined or inspected as follows:

(a) Derricks with their winches and accessory gear, including the attachments, as a unit; and cranes and other hoisting machines with their accessory gear, as a unit, shall be tested and thoroughly examined every four years in the manner set forth in Subpart E of this part.

(b) Derricks, their permanent attachments and any other fixed gear, the dismantling of which is especially difficult, shall be visually inspected every twelve months. In order to facilitate such inspection, all derricks shall be lowered.

(c) All hoisting machines (e.g., cranes, winches, blocks, shackles, and all other accessory gear) not included in paragraph (b) of this section shall be thoroughly examined every 12 months by means of a visual examination, supplemented as necessary by other means, such as a hammer test or with electronic, ultrasonic, or other nondestructive methods, carried out as carefully as conditions permit in order to arrive at a reliable conclusion as to the safety of the parts examined. Particular attention shall be paid to the suitability for continued use of all swivels and the pins and bushings of blocks. If necessary, parts of the machines or gear shall be dismantled. If blocks are disassembled, all shell bolt nuts shall be securely locked upon reassembly.

(d) Where a derrick or crane is mounted on a barge hull, and ballast tanks within the hull are used to facilitate use of the derrick or crane, or uncontrolled free surface may be a factor, each annual inspection or examination, as required, shall include such inspection as is necessary for the purpose of determining the integrity of any internals contributing to stability under conditions of use. The owner shall provide the accredited person with necessary information on any ballasting arrangements required.

(e) Annual inspection or examination, as required, shall include, among other things, examination of the following:

(1) Derrick heel attachment points. Heel pins may, if possible, be examined by nondestructive examination.

(2) Shrouds and stays necessary in the use of the gear, together with attachment points.

(3) Deck fittings for the securing of vangs, topping lifts, and/or preventers.

(4) Means of attachment to the hull of "A" frame or other fixed derrick or crane structure and of mobile types of equipment permanently placed aboard the barge or vessel.

(5) Clamshell buckets or other similar equipment, such as magnets, etc., used in conjunction with a derrick or crane mounted aboard a vessel, with particular attention to closing line wires and sheaves. The accredited person may supplement such examination by requesting any operational tests he may deem appropriate.

(6) Winch and other operating drums for excessive wear or defect.

§ 1919.16 Heat treatment.

(a) All chains (other than bridle chains attached to derricks or masts), rings, hooks, shackles, and swivels made of wrought iron, which are used in hoisting or lowering, shall be annealed in accordance with § 1919.36 at the following intervals:

(1) Half-inch and smaller chains, rings, hooks, shackles and swivels in general use, at least once every six months; and

(2) All other chains, rings, hooks, shackles, and swivels in general use, at least once every twelve months.

(3) In the case of gear used solely on lifting machinery worked by hand, twelve months shall be substituted for six months in paragraph (a)(1) of this section and two years for twelve months in paragraph (a)(2) of this section.

(4) When used in this paragraph, the term "in general use" means used on fifty-two or more days in a year. In any case, however, the period between annealings shall not exceed two years.

(b) Chains, rings, hooks, shackles, and swivels made of material other than wrought iron or steel shall be heat treated when necessary in accordance with § 1919.36(o).

§ 1919.17 Exemptions from heat treatment.

Gear made of steel, or gear which contains (as in ball bearings swivels), or is permanently attached to (as with blocks) equipment made of materials which cannot be subjected to heat treatment shall be exempt from the requirements of § 1919.16. Such gear, however, shall be thoroughly examined in the manner described in § 1919.15(c).

§ 1919.18 Grace periods.

Grace periods allowed in connection with the requirements of this subpart are as follows:

(a) Annual or six-month requirements—by the end of the voyage during which they become due;

(b) Quadrennial requirements—within six months after the date when due;

(c) Grace periods shall not be deemed to extend subsequent due dates.

§ 1919.19 Gear requiring welding.

Chains or other gear which have been lengthened, altered or repaired by welding shall be properly heat treated where necessary, and, before again being put into use, shall be tested and reexamined in the manner set forth in Subpart E of this part.

§ 1919.20 Damaged components.

(a) Pursuant to § 1918.51(b) of this chapter, any derrick or associated permanent fitting which is deformed in service between surveys shall be subjected to proof test to determine its suitability for continued service. If a proof test indicates that the derrick or associated permanent fitting may be continued in service without repair, a note of the existing deformity shall be made on the test certificate. When, in the opinion of the accredited person, it is unsafe to conduct a proof test with an existing deformity, the derrick or associated permanent fitting shall be replaced or repaired and then subjected to proof test in accordance with Subpart E of this part.

(b) Any loose gear components which are injured or deformed by a proof load shall be replaced before a certificate is issued.

(c) Any derrick, other fixed installation, or associated permanent fitting which is injured or deformed by a proof load shall be replaced or repaired and another proof load test

shall be conducted without damage before a certificate is issued.

§ 1919.21 Marking and posting of safe working loads.

(a) The safe working load of the assembled gear and the minimum angle to the horizontal at which this load may be applied shall be plainly marked at the heels of all booms along with the date of the test. Where gear is certificated for use in union purchase, the union purchase safe working load shall also be plainly marked. Any limitations shall be noted in the vessel's papers.

(b) The safe working load shall be marked on all blocks used in hoisting or lowering.

(c) When the capacity of the boom of a crane or derrick has been or will be rated in accordance with the variance of its radius, the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the crane operator. Ratings may be stated in pounds. When they are stated in tons of 2,000 pounds, this fact shall be indicated.

§ 1919.22 Requirements governing braking devices and power sources.

All types of winches and cranes shall be provided with means to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated. Electric winches, electrohydraulic winches fitted with electromagnetic or hydraulic brakes at the winch, or electric cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator. Current for operation of electric winches and cranes during the tests shall be taken from the vessel's circuits. Shore current may be used if it passes through the vessel's main switchboard.

§ 1919.23 Means of derrick attachment.

Appropriate measures shall be taken to prevent the foot of a derrick from being accidentally lifted from its socket or support during the test.

§ 1919.24 Limitations on use of wire rope.

(a) An eye splice made in any wire rope shall have at least three tucks with a whole strand of rope and two tucks with one-half of the wires cut out of each strand. However, this requirement shall not operate to preclude the use of another form of splice or connection which can be shown to be as efficient and which is not prohibited by Part 1918 of this chapter.

(b) Except for eye splices in the ends of wires, each wire rope used in hoisting or lowering, in guying derricks, or as a topping lift, preventer or pendant shall consist of one continuous piece without knot or splice.

(c) Eyes in the ends of wire rope cargo falls shall not be formed by knots and, in single part falls, shall not be formed by wire rope clips.

(d) The ends of falls shall be secured to the winch drums by clamps, U-bolts, shackles or some other equally strong method. Fiber rope fastenings shall not be used.

(e) Wire rope shall not be used for the vessel's cargo gear if in any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect. Particular attention shall be given to the condition of those sections of wire rope adjacent to any terminal connections, those sections exposed to abnormal wear, and those sections not normally exposed for examination.

§ 1919.25 Limitations on use of chains.

Chains forming a part of vessel's cargo gear shall not be used when, due to stretch, the increase of length of a measured section exceeds five percent, when a link is damaged, or when other external defects are evident. Chains shall not be shortened by bolting, wiring, or knotting.

Subpart E—Certification of Vessels: Tests and Proof Loads; Heat Treatment; Competent Persons

§ 1919.26 Visual inspection before tests.

Before any test under this Subpart E is carried out, a visual inspection of the gear involved shall be conducted

and any visibly defective gear shall be replaced or repaired. The provisions of § 1919.15(d) shall be adhered to.

§ 1919.27 Unit proof tests—winches, derricks and gear accessory thereto.

(a) Winches, with the whole of the gear accessory thereto (including derricks, goosenecks, eye plates, eye bolts, or other attachments), shall be tested with a proof load which shall exceed the safe working load as follows:

Safe working load	Proof load
Up to 20 tons	25 percent in excess.
20–50 tons	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load shall be lifted with the vessel's normal tackle with the derrick at an angle not more than 15 degrees to the horizontal, or, at the designed minimum angle when this is greater, or, when this is impracticable, at the lowest practicable angle. The angle at which the test was made shall be stated in the certificate of test. After the proof load has been lifted, it shall be swung as far as possible in both directions. In applying the proof load, the design factors of the gear concerned will determine whether the load is applied with a single part fall or with a purchase and the certificate of test shall state the means used. Where winches are fitted with mechanical brakes for manual operation they shall be demonstrated to be in satisfactory operating condition.

(c) In the case of heavy lift derrick barges, proof loads shall be applied, except as limited by design and stability considerations, at the maximum and minimum radii for which derricks are designed, as well as at any intermediate radius which the surveyor may deem necessary, and shall be swung as far as possible in both directions. Data with respect to each proof load applied shall be entered in the test certificate.

(d) No items of cargo gear furnished from outside sources shall be used as a part of the vessel's gear for the purpose of accomplishing the proof test.

(e) All tests prescribed by this section should in general be carried out with dead load, except that in the case of quadrennial tests, replacements, or renewals, spring or hydraulic balances may be used where dead loads are not reasonably available. However, no exception shall be allowed in the case of gear on new vessels.

(f) The test shall not be regarded as satisfactory unless the indicator remains constant under the proof load for a period of at least 5 minutes.

(g)(1) The safe working load, determined pursuant to the requirements of this section, shall be applicable only to a swinging derrick. When using two fixed derricks in "union purchase" rigs, the safe working load should generally be reduced. It is recommended that owners obtain union purchase safe working load certification based upon design study and analysis by, or acceptable to, a qualified technical office of an accredited gear certification agency, with the recognition that such determinations are valid only for the conditions contemplated in the analysis.

(2) Where both guys and preventers are fitted, union purchase certification shall state whether the guy or the preventer is the working strength member, when the guy is for slewing only, and when the guy and preventer should share working loads as far as practicable.

(h) When necessary in the proof testing of heavy derricks, the appropriate shrouds and stays shall be rigged.

§ 1919.28 Unit proof tests—cranes and gear accessory thereto.

(a) Except as noted in paragraph (e) of this section, cranes and other hoisting machines, together with gear accessory thereto, shall be tested with a proof load which shall exceed the safe working load as follows:

Safe working load	Proof load
Up to 20 tons	25 percent in excess.
20–50 tons	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load shall be lifted and swung as far as possible in both directions. If the jib or boom of the crane has a variable radius, it shall be tested with proof loads, as specified in para-

graph (a) of this section, at the maximum and minimum radii. In the case of hydraulic cranes, when due to the limitation of pressure it is impossible to lift a load 25 percent in excess of the safe working load, it will be sufficient to lift the greatest possible load.

(c) Initial proof tests of new cranes shall be made only with a dead load as specified in paragraph (b) of this section.

(d) Initial tests of cranes which have been in service, quadrennial tests, or tests associated with replacements or renewals, may be made with spring or hydraulic balances where dead loads are not reasonably available under the following conditions:

(1) Tests shall be conducted at maximum, minimum, and intermediate radius points, as well as such points in the arc of rotation as meet with the approval of the accredited person.

(2) An additional test shall be conducted with partial load and shall include all functions and movements contemplated in the use of the crane.

(e) In cases where shore-type cranes are mounted permanently aboard barges, the requirements of this Subpart E with respect to unit proof tests and examinations shall not apply and the applicable requirements of Subpart H of this part shall be adhered to with respect to unit proof tests and examinations.

§ 1919.29 Limitations on safe working loads and proof loads.

The proof loads specified by §§ 1919.27 and 1919.28 shall be adjusted as necessary to meet any pertinent limitations based on stability and/or on structural competence at particular radii. Safe working loads shall be reduced accordingly.

§ 1919.30 Examinations subsequent to unit tests.

(a) After satisfactory completion of the unit proof load tests required by §§ 1919.27 and 1919.28, the cargo gear and all component parts thereof shall be given a thorough visual examination, supplemented as necessary by other means, such as a hammer test or with electronic, ultrasonic, or other nondestructive methods, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use.

(b) When the test of gear referred to in paragraph (a) of this section is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there is evidence of deformation or failure.

(c) For subsequent tests such parts of the gear shall be dismantled or disassembled after the test as necessary to determine their suitability for continued service.

(d) When blocks are disassembled all shell bolt nuts shall be securely locked upon reassembly.

(e) In carrying out the requirements of this section, replacement shall be required of:

(1) Any swivel found to have excessive tolerance as a result of wear on any bearing surface.

(2) Pins of blocks found to be shouldered, notched, or grooved from wear, in which case, in addition to replacing the pin, sheave bushings shall be examined for suitability for continued use.

§ 1919.31 Proof tests—loose gear.

(a) Chains, rings, shackles and other loose gear (whether accessory to a machine or not) shall be tested with a proof load against the article equal to that shown in the following table:

Article of gear	Proof load
Chain, ring, hook, shackle or swivel	100 percent in excess of the safe working load.
Blocks:	
Single sheave block	300 percent in excess of the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.	100 percent in excess of the safe working load.

Article of gear	Proof load
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block with safe working load over 40 tons	50 percent in excess of the safe working load.
Pitched chains used with hand-operated blocks and rings, hooks, shackles or swivels permanently attached thereto.	50 percent in excess of the safe working load.
Hand-operated blocks used with pitched chains and rings, hooks, shackles or swivels permanently attached thereto.	50 percent in excess of the safe working load.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye of pin of the block when lifting the nominal safe working load defined in (i) below. The proof load is, therefore, equal to four times the safe working load as defined in (i) below or twice the safe working load as defined in (ii) below.

(i) The nominal safe working load of a single-sheave block should be the maximum load which can be safely lifted by the block when the load is attached to a rope which passes around the sheave of the block.

(ii) In the case of a single-sheave block where the load is attached directly to the block instead of to a rope passing around the sheave, it is permissible to lift a load equal to twice the nominal safe working load of the block as defined in (i) above.

(iii) In the case of a lead block so situated that an acute angle cannot be formed by the two parts of the rope passing over it (i.e., the angle is always 90° or more), the block need not have a greater nominal safe working load than one-half the maximum resultant load which can be placed upon it.

(b) In cases where persons accredited to carry out loose gear tests may be retained to conduct tests of special stevedoring gear as described in § 1918.61(b) of this chapter, which does not form part of a vessel's equipment, such tests shall adhere to the requirements set forth in § 1918.61(b) (1), (2), and (3) of this chapter.

(c) After being tested as required by paragraph (a) of this section, and before being taken into use, all chains, rings, hooks, shackles, blocks or other loose gear, except as noted in § 1919.32, shall be thoroughly examined, the sheaves and pins of the blocks being removed for this purpose, to determine whether any part has been injured or permanently deformed by the test. Shell bolt nuts shall be securely locked upon reassembly. Defective loose gear components shall be replaced before the certificate is issued.

(d) Any certificate relating to shackles, swivels or strength members of single-sheave blocks which have been restored to original dimensions by welding shall state this fact.

§ 1919.32 Specially designed blocks and components.

(a) Blocks and connecting components of an unusual nature which are specially designed and constructed as an integral part of a particular lifting unit and are either permanently affixed or of such design that two or more components must be tested together need not be considered as loose gear for purposes of § 1919.31.

(b) In lieu of the loose gear proof test required by § 1919.31(a), design data shall be submitted to an accredited certification agency indicating design and material specifications and analysis whereby the designed strength of such gear may be determined.

(c) Subsequent to the test of the lifting unit as a whole, a thorough visual examination shall be made of disassembled parts and an electronic, ultrasonic, or other equally efficient nondestructive examination shall be made of those parts not dismantled to ensure the safe condition of such parts.

§ 1919.33 Proof tests—wire rope.

Wire rope, except as provided in § 1919.14(b), shall be tested by sample, a piece being tested to destruction, and the safe working load of running ropes, unless otherwise acceptable to the Administration on the basis of design, shall not exceed one-fifth of the breaking load of the sample tested. In the case of running ropes used in gear with a safe working load exceeding 10 tons, the safe working load shall not exceed one-fourth of the breaking load of the sample tested.

§ 1919.34 Proof tests after repairs or alterations.

When proof loads are applied after repairs or alterations, all parts of the assembled gear shall be examined as required in §§ 1919.30, 1919.31(c), or 1919.32(c), whichever is applicable.

§ 1919.35 Order of tests.

When both unit and loose gear proof load tests are required, the loose gear

test may be carried out after completion of the unit test.

§ 1919.36 Heat treatment.

(a) The annealing of wrought iron gear required by this part shall be accomplished at a temperature between 1100° and 1200° F. and the exposure shall be of between 30 and 60 minutes duration. After being annealed, the gear shall be allowed to cool slowly and shall then be carefully inspected. All annealing shall be carried out in a closed furnace.

(b) When heat treatment of loose gear made of other than wrought iron or steel is recommended by the manufacturer, it shall be carried out in accordance with the specifications of the manufacturer.

§ 1919.37 Competent persons.

All gear certification functions shall be performed by competent persons as set forth in the following table:

Functions	Competent person
Any testing, examination, inspection, or heat treatment required in United States ports.	Responsible individual, surveyor or other authorized agent of a person accredited by the Administration under the regulations contained in this part.
Any testing, examination, inspection, or heat treatment required while the vessel is in other than United States ports.	Responsible individual, surveyor or other authorized agent of persons recognized by the Commandant of the United States Coast Guard or by a foreign nation whose certification is accepted by the Administration as being in substantial accordance with § 1918.12(a) of this chapter.
Testing, examination and inspection of loose gear or wire rope; heat treatment of loose gear.	Employees or authorized agents of persons accredited specifically by the Administration for this purpose under the regulations contained in this part, or the manufacturer of the gear concerned unless disapproved by the Assistant Secretary.

Subpart F—Accreditation To Certificate Shore-Based Equipment

§ 1919.50 Eligibility for accreditation to certificate shore-based material handling devices covered by § 1918.13 of the safety and health regulations for longshoring.

(a) A person applying for accreditation to carry out certification activities and to issue and maintain the requisite records must be:

(1) A manufacturer of cranes or derricks or of specialized equipment of the type for which accreditation application is made, or a person or organization representing such a manufacturer in a technical capacity; or

(2) Technically experienced and qualified to carry out examinations and/or testing, as applicable, of vessels or shore-based equipment or gear of the type for which accreditation application is made.

(b) The owner of shore-based equipment affected may designate a member of his organization to carry out certification functions respecting the owner's equipment, on the following conditions:

(1) The designee is technically experienced and qualified in the inspection and maintenance or design of the type of equipment involved, aside from employment as an operator only.

(2) The designee has applied to an accredited, nationally operating certification agency and has been granted appointment or equivalent recognition by that agency as a surveyor for the purpose intended.

(3) Certification activities carried out by the designee are cleared through the offices, and are subject to the approval, of the accredited certificating agency. When equipment is found satisfactory for use upon any survey, said equipment may be used pending receipt of notification of such approval or any disapproval.

(4) In cases where equipment is certificated by a person designated by the equipment owner, the cognizant accredited certification agency retains the right to inspect such equipment as desired and convenient in order to ascertain the adequacy of the certification activity performed.

(c) Accreditation to conduct such nondestructive examination as may be

a part of any certification activity may be granted to applicants found competent and equipped to carry out this activity.

(d) Unless exemptions are granted at the discretion of the Assistant Secretary in cases of practical difficulties or unnecessary hardship, applicants for accreditation as specified in this section shall be prepared to carry out all necessary functions, except that any requisite wire rope tests, nondestructive examinations, and heat treatments may be carried out by the manufacturer of the gear concerned or by another person accredited specifically for these purposes.

(e) A person applying for accreditation shall have a satisfactory record of relevant experience and performance, and shall be in sound financial condition.

§ 1919.51 Provisions respecting application for accreditation, action upon the application, and related matters.

The provisions of §§ 1919.3, 1919.4, 1919.5, 1919.7, 1919.8, and 1919.9 shall govern accreditation to certificate shore-based material handling devices to the extent applicable.

Subpart G—Duties of Persons Accredited to Certificate Shore-Based Material Handling Devices

§ 1919.60 General duties, exemptions.

(a) The requirements of Subpart H of this part shall be strictly observed: *Provided, however,* That in cases of practical difficulties or unnecessary hardship, the Assistant Secretary in his discretion may grant exemptions or variations from any provision in that subpart.

(b) Except as otherwise noted in this part, all functions required by Subpart H of this part shall be carried out by or under the supervision of a person accredited for the purpose or by his authorized representative.

(c) All required unit proof load tests shall be carried out by the use of weights as a dead load. Only where this is not possible may dynamometers or other recording test equipment be used. Any such recording test equipment owned by an accredited person shall have been tested for accuracy within the 6 months next preceding application for accreditation or renewal thereof. Such test shall be performed with calibrating equipment which has been checked in turn so that indications are traceable to the National Bureau of Standards. A copy of test reports shall accompany the accreditation application. Where test equipment is not the property of the accredited person, that person shall not issue any certificate based upon the use of such equipment unless its owner has made available a certificate of accuracy based on the requirements of this paragraph obtained within the year prior to such use, and stating the errors of the equipment. In any event, reasonable standards of accuracy shall be met and proof loads adjusted as necessary.

(d) The qualifications of any person appointed or recognized by any accredited person for the purpose of carrying out certification functions shall meet with the approval of the Assistant Secretary.

(e) Sections 1919.10(e) and (g) and 1919.11 shall govern, to the extent applicable, persons accredited under Subpart F of this part.

Subpart H—Certification of Shore-Based Material Handling Devices

§ 1919.70 General provisions.

(a) Certification of shore-based material handling devices shall conform to the requirements contained in this subpart, except in cases for which exemptions or variations have been granted by the Assistant Secretary as provided in §§ 1919.50(d) and 1919.60(a).

(b) Any replacements or repairs deemed necessary by the accredited person shall be carried out before application of a proof test.

(c) "Ton" in this subpart means a ton of 2,000 pounds.

(d) When applied to shore-based material handling devices, ratings may be stated in pounds rather than tons. When stated in tons of 2,000 pounds, this fact shall be indicated.

§ 1919.71 Unit proof test and examination of cranes.

(a) Unit proof tests of cranes shall be carried out at the following times:

(1) In the cases of new cranes, before initial use and every 4 years thereafter.

(2) In the cases of uncertificated cranes which have been in use, at the time of initial certification and every 4 years thereafter.

(3) After important alterations and renewals and after repairs due to failure of, or damage to major components.

(b) Unit proof load tests of cranes shall be carried out where applicable with the boom in the least stable direction relative to the mounting, based on the manufacturer's specifications.

(c) Unit proof load tests shall be based on the manufacturer's load ratings for the conditions of use and shall, except in the case of bridge type cranes utilizing a trolley, consist of application of a proof load of 10 percent in excess of the load ratings at maximum and minimum radii, and at such intermediate radii as the certificating authority may deem necessary in the circumstances.[1] Trolley equipped cranes shall be subject to a proof load of 25 percent in excess of the manufacturer's load rating. In cases of foreign manufacture, the manufacturer's specifications shall be subject to approval by the certificating authority as being equivalent to U.S. practice. The weight of all auxiliary handling devices such as, but not limited to, magnets, hooks, slings, and clamshell buckets, shall be considered part of the load.

(d) An examination shall be carried out in conjunction with each unit proof load test. The accredited person, or his authorized representative, shall make a determination as to correction of deficiencies found. The examination shall cover the following points as applicable:

(1) All functional operating mechanisms shall be examined for improper function, maladjustment, and excessive component wear, with particular attention to sheaves, pins, and drums. The examination shall include operation with partial load, in which all functions and movements, including, where applicable, maximum possible rotation in both directions, are performed.

(2) All safety devices shall be examined for malfunction.

(3) Lines, tanks, valves, drains, pumps, and other parts of air or hydraulic systems shall be examined for deterioration or leakage.

(4) Loose gear components, such as hooks, including wire rope and wire rope terminals and connections, shall be checked with particular attention to sections of wire rope exposed to abnormal wear and to sections not normally exposed for examination. The provisions of § 1919.24 shall apply in wire rope examinations. Cracked or deformed hooks shall be discarded and not reused on any equipment subject to the provisions of Part 1918 of this chapter and this Part 1919.

(5) Rope reeving shall comply with manufacturer's recommendations.

(6) Deformed, cracked, or excessively corroded members in crane structure and boom shall be repaired or replaced as necessary.

(7) Loose bolts, rivets, or other connections shall be corrected.

(8) Worn, cracked, or distorted parts affecting safe operation shall be corrected.

(9) Brake and clutch system parts, linings, pawls, and ratchets shall be examined for excessive wear and free operation.

(10) Load, boom angle, or other indicators shall be checked over their full range for any significant inaccuracy. A boom angle or radius indicator shall be fitted.

(11) It shall be ascertained that there is a durable rating chart visible to the operator, covering the complete range of the manufacturer's capacity ratings at all operating radii, for all permissible boom lengths and jib

[1] The manufacturer's load ratings are usually based upon percentage of tipping loads under some conditions and upon limitations of structural competence at others, as well as on other criteria such as type of crane mounting, whether or not outriggers are used, etc. Some cranes utilizing a trolley may have only one load rating assigned and applicable at any outreach. It is important that the manufacturer's ratings be used.

lengths, with alternate ratings for optional equipment affecting such ratings. Necessary precautions or warnings shall be included. Operating controls shall be marked or an explanation of controls shall be posted at the operator's position to indicate function.

(12) Where used, clamshell buckets or other similar equipment such as magnets, etc., shall be carefully examined in all respects, with particular attention to closing line wires and sheaves. The accredited person may supplement such examination by requesting any operational tests as may be appropriate.

(13) Careful examination of the junction areas of removable boom sections, particularly for proper seating, cracks, deformities, or other defects in securing bolts and in the vicinity of such bolts.

(14) It shall be ascertained that no counterweights in excess of the manufacturer's specifications are fitted.

(15) Such other examination or supplemental functional tests shall be made as may be deemed necessary by the accredited person under the circumstances.

§ 1919.72 Annual examination of cranes.

(a) In any year in which no quadrennial unit proof test is required, an examination shall be carried out by an accredited person or his authorized representative. Such examination shall be made not later than the anniversary date of the quadrennial certification and shall conform with the requirements of § 1919.71(d).

§ 1919.73 Unit proof test and examination of derricks.

(a) Unit proof tests of derricks shall be carried out at the same times as are specified in § 1919.71(a) for cranes.

(b) Unit proof load tests and safe working load ratings shall be based on the design load ratings at the ranges of boom angles or operating radii. Unit proof loads shall exceed the safe working load as follows:

Safe working load	Proof Load
Up to 20 tons	25 percent in excess.
Over 50 tons	5 tons in excess.

Safe working load	Proof Load
Over 50 tons	10 percent in excess.

Proof loads shall be applied at the designed maximum and minimum boom angles or radii, or, if this is impracticable, as close to these as practicable. The angles or radii of test shall be stated in the certificate of test. Proof loads shall be swung as far as possible in both directions. The weight of all auxiliary handling devices shall be considered a part of the load.

(c) After satisfactory completion of a unit proof load test, the derrick and all component parts thereof shall be carefully examined in accordance with the requirements of § 1919.71(d), as far as applicable.

§ 1919.74 Annual examination of derricks.

(a) In any year in which no quadrennial unit proof test is required, an examination shall be carried out by an accredited person or his authorized representative. Such annual examination shall be made not later than the anniversary date of the quadrennial certification and shall conform in all applicable respect with § 1919.71(d).

§ 1919.75 Determination of crane or derrick safe working loads and limitations in absence of manufacturer's data.

(a) In the event neither manufacturer's data nor design data on safe working loads (including any applicable limitations) are obtainable, the safe working load ratings assigned shall be based on the owner's information and warranty that those so assigned are correct. Unit test certificates shall state the basis for any such safe working load assignment.

§ 1919.76 Safe working load reduction.

(a) If the operation in which equipment is engaged never utilizes more than a fraction of the safe working load rating, the owner of such equipment may, at his option, have the crane or derrick certificated for and operated at a lesser maximum safe working load in keeping with the use and based on radius and other pertinent factors: *Provided, however,* That the equipment concerned is physically

capable of operation at the original load rating and the load reduction is not for the purpose of avoiding correction of any deficiency.

§ 1919.77 Safe working load increase.

(a) In no case shall safe working loads be increased beyond the manufacturer's ratings or original design limitations unless such increase meets with the manufacturer's approval. Where the manufacturer's services are not available, or where the equipment is of foreign manufacture, engineering design analysis by, or acceptable to, the accredited certification agency is required. All necessary structural changes shall be carried out.

§ 1919.78 Nondestructive examinations.

(a) Wherever it is considered necessary by the accredited person or his authorized representative and wherever it is practical and advisable to avoid disassembly of equipment, removal of pins, etc., examination of structure or parts by electronic, ultrasonic, or other nondestructive methods may be carried out, provided that the procedure followed is acceptable to the Assistant Secretary and the person carrying out such examination is accredited or acceptable to the Assistant Secretary for the purpose.

§ 1919.79 Wire rope.

(a) Wire rope and replacement wire rope shall be of the same size, same or better grade, and same construction as originally furnished by the equipment manufacturer or contemplated in the design, unless otherwise recommended by the equipment or the wire rope manufacturer due to actual working condition requirements. In the absence of specific requirements as noted, wire rope shall be of a size and construction suitable for the purpose, and a safety factor of 4 shall be adhered to, and verified by wire rope test certificate.

(b) Wire rope in use on equipment previously constructed and prior to initial certification of said equipment shall not be required to be tested, but shall be subject to thorough examination at the time of initial certification of the equipment.

§ 1919.80 Heat treatment.

(a) Wherever heat treatment of any loose gear is recommended by the manufacturer, it shall be carried out in accordance with the specifications of the manufacturer.

§ 1919.81 Examination of bulk cargo loading or discharging spouts or suckers.

(a) Those portions of bulk cargo loading or discharging spouts or suckers which extend over vessels, together with any portable extensions, rigging components, outriggers, and attachment points supporting them or any of their components vertically, shall be examined annually. The examination shall be carried out with particular attention to the condition of wire rope and accessories. The equipment shall not be considered satisfactory unless, in the opinion of the accredited person or his authorized representative, it is deemed fit to serve its intended function.

§ 1919.90 Documentation.

(a) Documents issued respecting a certification function by an accredited person shall be on forms approved for such use by the Assistant Secretary and shall so state.

(b) Such documents shall be issued by the accredited person to the owners of affected equipment, attesting to satisfactory compliance with applicable requirements. The forms used shall contain the following information:

(1) Unit proof tests where required—

(i) Identification of crane or derrick including manufacturer, model number, serial number, and ownership.

(ii) Basis for assignment of safe worksigned (i.e., whether based on manufacturing load ratings, with the ratings asturer's ratings, whether for any specific service, etc.).

(iii) Proof test details noting radii and proof loads, how applied, and, where applicable, direction relative to mounting.

(iv) A statement that the test and associated examination were conducted and all applicable requirements of this subpart are met.

(v) Any necessary remarks or supplementary data, including limitations imposed and the reason thereof.

(vi) Name of accredited person and identification of authorized representative actually conducting test and/or examination.

(vii) Authorized signature of accredited person; date and place of test and/or examination.

(2) Annual examination of cranes or derricks—

(i) Information specified in paragraphs (b)(1) (i), (v), (vi), and (vii) of this section.

(ii) A statement that the required examination has been carried out and that, in the opinion of the accredited person or his authorized representative, the equipment has been found in compliance in all applicable respects with the requirements of this subpart.

(3) Annual examination of bulk cargo loading or discharging spouts or suckers—

(i) Specific identification of equipment.

(ii) A statement that examination has been completed and that, in the opinion of the accredited person or his authorized representative, the equipment meets the criteria of § 1919.81(a).

(iii) Information specified in paragraphs (b)(1) (v), (vi), and (vii) of this section.

(c) Certificates relating to wire rope, whether tested by or under the supervision of the accredited person or by its manufacturer and whether or not issued on the basis of the manufacturer's certificates, shall follow the general format of a wire rope test form approved by the Administration.

(d) Accredited persons shall advise owners of affected equipment of the necessity for maintaining required documentation or acceptable copies thereof available for inspection at or near the worksite of the equipment involved.

(1) Where initial and periodic tests as well as annual examinations are required, documentation available for inspection shall include the latest unit test certificate and any subsequent annual examination certificates, together with wire rope test certificates relating to any replacements since the last unit test or annual examination.

(2) Where only annual examination is required, documentation available for inspection shall include the latest annual examination certificate and wire rope test certificates relating to any wire replaced since the last annual examination.

(3) In the event that the heat treatment of any loose gear is recommended by its manufacturer, the latest heat treatment certificate, attesting to compliance with the manufacturer's specifications, shall be part of the available documentation.

(e) No certification shall be issued until any deficiencies considered by the accredited person to constitute a currently unsatisfactory condition have been corrected. Replacement parts shall be of equal or better quality than original equipment and suitable for the purpose. In the event deficiencies remain uncorrected and no certification therefore is issued, the accredited person shall inform the nearest district office of the Administration of the circumstances.

EDITORIAL NOTE: This listing is provided for information purposes only. It is compiled and kept up-to-date by the Department of Labor.

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PART 1920—PROCEDURE FOR VARIATIONS FROM SAFETY AND HEALTH REGULATIONS UNDER THE LONGSHOREMEN'S AND HARBOR WORKERS' COMPENSATION ACT

Sec.
1920.1 Purpose.
1920.2 Variances.

AUTHORITY: Sec. 41, Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941); sec. 6, Occupational Safety and Health Act of 1970 (29 U.S.C. 655).

§ 1920.1 Purpose.

This part governs the procedure for the granting of variations from the safety and health regulations established pursuant to section 41 of the Longshoremen's and Harbor Workers' Compensation Act. The part provides the same procedures under this Act as are available for considering variances under the Williams-Steiger Occupational Safety and Health Act of 1970 (29 U.S.C. 651 et seq.).

[37 FR 10800, May 31, 1972]

§ 1920.2 Variances.

(a) Variances from standards in Parts 1915 through 1918 of this chapter may be granted in the same circumstances in which variances may be granted under sections 6(b) (6)(A) or 6(d) of the Williams-Steiger Occupational Safety and Health Act of 1970 (29 U.S.C. 655). The procedures for the granting of variances from Parts 1915–1918 of this chapter are those published in Part 1905 of this chapter.

(b) Any requests for variances shall also be considered requests for variances under the Williams-Steiger Occupational Safety and Health Act of 1970, and any variance from §§ 1910.13 through 1910.16 of this chapter which adopt Parts 1915–1918 of this chapter, shall be deemed a variance from the standard under both the Longshoremen's and Harbor Workers' Compensation Act and the Williams-Steiger Occupational Safety and Health Act of 1970.

[37 FR 10800, May 31, 1972]

PART 1921—RULES OF PRACTICE IN ENFORCEMENT PROCEEDINGS UNDER SECTION 41 OF THE LONGSHOREMEN'S AND HARBOR WORKERS' COMPENSATION ACT

Subpart A—Applicability of Rules; Definitions

Sec.
1921.1 Applicability of rules.
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1921.3 Complaints.
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1921.17 Service; copies of documents and pleadings.
1921.18 Witnesses and fees.
1921.19 Depositions.
1921.20 Subpoenas.
1921.21 Hearing examiners.
1921.22 Computation of time.

AUTHORITY: Sec. 41, Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941); 5 U.S.C. 301.

SOURCE: 27 FR 4165, May 2, 1962, unless otherwise noted. Redesignated at 28 FR 7909, Aug. 2, 1963. Redesignated at 36 FR 25232, Dec. 31, 1971.

Subpart A—Applicability of Rules; Definitions

§ 1921.1 Applicability of rules.

This part provides rules of practice for administrative hearings relating to the enforcement of section 41 of the Longshoremen's and Harbor Workers' Compensation Act and the safety regulations promulgated thereunder

which are published in Parts 1915 and 1918 of this subtitle. This part applies only to proceedings held under section 41(b)(5) of the Act. It does not apply to any other administrative proceedings held under section 41 of the Act.

§ 1921.2 Definitions.

(a) "Act" means the Longshoremen's and Harbor Workers' Compensation Act.

(b) "Chief Hearing Examiner" means the Chief Hearing Examiner, United States Department of Labor, Washington D.C. 20210.

(c) "Respondent" means the person or organization proceeded against.

(d) "Assistant Secretary" means the Assistant Secretary for Occupational Safety and Health.

Subpart B—Prehearing Procedures

§ 1921.3 Complaints.

(a) *Issuance.* The Deputy Solicitor of Labor shall institute enforcement proceedings by issuing a complaint and causing the complaint to be served upon the respondent.

(b) *Contents.* The complaint shall contain a clear and concise factual statement sufficient to inform the respondent with reasonable definiteness of the types of acts or practices alleged to have occurred and to violate section 41 of the Act or the provisions of Parts 1915 and 1918 of this subtitle.

(c) *Amendments.* At any time prior to the close of the hearing, the complaint may be amended in the discretion of the hearing examiner and on such terms as he may approve.

(d) *Notice of hearing.* The hearing examiner shall notify the parties of the time and place for a hearing within 10 days after the service of the complaint.

§ 1921.4 Answer.

(a) *Filing and service.* Within 14 days after the service of the complaint, the respondent shall file an answer with the Chief Hearing Examiner. The answer shall be signed by the respondent or his attorney.

(b) *Contents; failure to file.* The answer shall: (1) Contain a statement of the facts which constitute the grounds of defense, and shall specifically admit, explain, or deny, each of the allegations of the complaint unless the respondent is without knowledge, in which case the answer shall so state; or (2) state that the respondent admits all of the allegations of the complaint. The answer may contain a waiver of hearing. Failure to file an answer to or plead specifically to any allegation of the complaint shall constitute an admission of such allegation.

(c) *Procedure upon admission of facts.* The admission, in the answer or by failure to file an answer, of all the material allegations of fact contained in the complaint shall constitute a waiver of hearing. Upon such admission of facts, the hearing examiner without further hearing shall prepare his decision in which he shall adopt as his proposed findings of fact the material facts alleged in the complaint. The parties shall be given an opportunity to file exceptions to his decision, and to file briefs in support of the exceptions.

§ 1921.5 Motions and requests.

Motions or requests shall be filed with the Chief Hearing Examiner, except that those made during the course of the hearing shall be filed with the hearing examiner or shall be stated orally and made part of the transcript. Each motion or request shall state the particular order, ruling, or action desired, and the grounds therefor. The hearing examiner is authorized to rule upon all motions or requests filed or made prior to the filing of his report.

§ 1921.6 Intervention.

At any time after the institution of proceedings and before the hearing examiner makes his decision, the hearing examiner may, upon petition in writing and for good cause shown, permit any interested person, including an employer, employee, labor or trade organization, or Federal or State agency, to intervene therein. The petition shall state with precision and particularity: (a) The petitioner's relationship to the matters involved in the proceedings, (b) the nature of any material he intends to present in evidence, (c) the

nature of any argument he intends to make, and (d) any other reason that he should be allowed to intervene.

§ 1921.7 Stipulations of compliance.

At any time prior to the issuance of a complaint in the proceeding, the Assistant Solicitor in charge of trial litigation may in his discretion, enter into stipulations with the prospective respondent, whereby the latter admits the material facts and agrees to discontinue the acts or practices which are intended to be set up as violative of the Act or Parts 1915 and 1918 of this subtitle. Such stipulations shall be admissible as evidence of such acts and practices in any subsequent proceeding in law or equity or under these regulations against such person.

§ 1921.8 Consent findings and order.

(a) *General.* At any time after the issuance of a complaint and prior to the receiption of evidence in any proceeding, the respondent may move to defer the receipt of any evidence for a reasonable time to permit negotiation of an agreement containing consent findings and an order disposing of the whole or any part of the proceeding. The allowance of such deferment and the duration thereof shall be in the discretion of the hearing examiner, after consideration of the nature of the proceeding, the requirements of the public interest, the representations of the parties, and the probability of an agreement being reached which will result in a just disposition of the issues involved.

(b) *Content.* Any agreement containing consent findings and an order disposing of a proceeding shall also provide:

(1) That the order shall have the same force and effect as an order made after full hearing;

(2) That the entire record on which any order may be based shall consist solely of the complaint and the agreement;

(3) A waiver of any further procedural steps before the hearing examiner or the Director; and

(4) A waiver of any right to challenge or contest the validity of the findings and order entered into in accordance with the agreement.

(c) *Submission.* On or before the expiration of the time granted for negotiations, the parties or their counsel may:

(1) Submit the proposed agreement to the hearing examiner for his consideration; or

(2) Inform the hearing examiner that agreement cannot be reached.

(d) *Disposition.* In the event an agreement containing consent findings and an order is submitted within the time allowed therefor, the hearing examiner within 30 days thereafter shall accept such agreement by issuing his decision based upon the agreed findings.

§ 1921.9 Prehearing conferences.

(a) Upon his own motion or the motion of the parties, the hearing examiner may direct the parties or their counsel to meet with him for a conference to consider:

(1) Simplification of the issues;

(2) Necessity or desirability of amendments to pleadings for purposes of clarification, simplification, or limitation;

(3) Stipulations, admissions of fact and of contents and authenticity of documents;

(4) Limitation of the number of expert witnesses; and

(5) Such other matters as may tend to expedite the disposition of the proceeding.

(b) The record shall show the matters disposed of by order and by agreement in such pretrial conferences. The subsequent course of the proceeding shall be controlled by such action.

Subpart C—Hearing and Related Matters

§ 1921.10 Appearances.

(a) *Representation.* The parties may appear in person or by counsel. The term "counsel" means a member in good standing of the bar of a Federal Court or of the highest court of any State or Territory of the United States.

(b) *Failure to appear.* In the event that a party appears at the hearing and no party appears for the opposing side, the party who is present shall

have an election to present his evidence in whole or such portion thereof sufficient to make a prima facie case before the hearing examiner. Failure to appear at a hearing shall not be deemed to be a waiver of the right to be served with a copy of the hearing examiner's decision and to file exceptions thereto.

§ 1921.11 Postponement or change of place of hearing.

If in the judgment of the hearing examiner convenience or necessity so requires, he may postpone the time or change the place of the hearing.

§ 1921.12 Hearing.

(a) *Order of proceeding; burden of proof.* Except as may be determined otherwise by the hearing examiner, counsel supporting the complaint shall proceed first at the hearing. The Assistant Solicitor of Labor in charge of trial litigation, supporting the complaint, shall have the burden of proof. The burden of proof shall be satisfied by a preponderance of the evidence.

(b) *Evidence*—(1) *In general.* The testimony of witnesses shall be upon oath or affirmation administered by the hearing examiner and shall be subject to such cross-examination as may be required for a full and true disclosure of the facts. The hearing examiner shall exclude evidence which is immaterial, irrelevant, or unduly repetitious.

(2) *Objections.* If a party objects to the admission or rejection of any evidence or to the limitation of the scope of any examination or cross-examination or the failure to limit such scope, he shall state briefly the grounds for such objection. Rulings on all objections shall appear in the record. Only objections made before the hearing examiner may be relied upon subsequently in the proceeding.

(3) *Exceptions.* Formal exception to an adverse ruling is not required.

(c) *Official notice.* Official notice may be taken of any material fact not appearing in evidence in the record, which is among the traditional matters of judicial notice and also concerning which the Department by reason of its functions is presumed to be expert: *Provided,* That the parties shall be given adequate notice, at the hearing or by reference in the hearing examiner's decision of the matters so noticed, and shall be given adequate opportunity to show the contrary.

(d) *Oral argument before the hearing examiner.* Oral argument before the hearing examiner may be allowed. However, such argument may be limited by the hearing examiner to any extent that he finds necessary for the expeditious disposition of the proceeding.

(e) *Transcript.* Hearings shall be stenographically reported. Copies of the transcript may be obtained by the parties upon written application filed with the reporter, and upon the payment of fees at the rate provided in the agreement between the Assistant Secretary and the reporter.

Subpart D—Decision and Order

§ 1921.13 Decision of the hearing examiner.

(a) *Filing of transcript of evidence.* As soon as practicable after the close of the hearing, the reporter shall transmit to the Chief Hearing Examiner the copies of the transcript of the testimony and the exhibits introduced in evidence at the hearing except such copies of the transcript and exhibits as are forwarded to the hearing examiner.

(b) *Proposed findings of fact, conclusions, and orders.* Within 10 days after receipt of notice that the transcript of the testimony has been filed or such additional time as the hearing examiner may allow, each party may file with the hearing examiner proposed findings of fact, conclusions of law, and order, together with a supporting brief including the reasons for any proposals. Such proposals shall be served upon all parties, and shall contain adequate references to the record and authorities relied upon.

(c) *Decision of the hearing examiner.* Within a reasonable time after the termination of the time allowed for the filing of proposed findings of fact, conclusions of law, and orders, or after the date of submission of an agreement containing consent findings and order, the hearing examiner shall pre-

pare his decision, which shall become the decision of the Assistant Secretary 20 days after service thereof unless exceptions are filed thereto, as provided in § 1921.14 except in cases dealt with in § 1921.8(b). Except in cases under § 1921.8(b) the decision of the hearing examiner shall include a statement of:

(1) Findings and conclusions, with reasons and bases, therefor, upon each material issue of fact, law, or discretion presented on the record, and

(2) An appropriate order. Except in cases under § 1921.8(b), the decision of the hearing examiner shall be based upon a consideration of the whole record and supported by reliable, probative, and substantial evidence and upon the basis of the preponderance of the evidence.

§ 1921.14 Exceptions.

Within 20 days after the date of the decision of the hearing examiner, the parties may file exceptions thereto with supporting reasons. Any party who desires to take exception to any matter set out in that decision shall transmit his exceptions in writing to the Chief Hearing Examiner, referring to the specific findings of fact, conclusions of law, or order excepted to, and the specific pages of transcript relevant to the exceptions, and suggesting corrected findings of fact, conclusions of law, or order.

§ 1921.15 Transmittal of record.

Immediately following the period allowed for filing exceptions, the hearing examiner shall transmit the record of the proceeding to the Assistant Secretary. The record shall include: The pleadings, motions, and requests filed, and rulings thereon; the transcript of the testimony taken at the hearing, together with the exhibits filed; any documents or papers filed in connection with prehearing conferences; such proposed findings of fact, conclusions of law, and orders, and supporting reasons, as may have been filed in connection with the hearing; the hearing examiner's decision; and such exceptions, statements of objections, and briefs in support thereof, as may have been filed in the proceeding.

§ 1921.16 Decision and order of the Director.

(a) Upon the basis of and after due consideration of the whole record, the Assistant Secretary shall render his decision, which shall adopt, modify, or set aside the findings, conclusions, and order contained in the decision of the hearing examiner, and shall include a statement of the reasons or bases for the action taken. With respect to the findings of fact, the Assistant Secretary shall upset only those findings that are clearly erroneous. Copies of the decision and order shall be served upon the parties.

(b) When a final order of the Assistant Secretary issued pursuant to § 1921.13(c) or paragraph (a) of this section has been in force for 2 years or more, a party may file with the Assistant Secretary a petition for modification or vacation of the order. Such petition must be in writing, and must be based upon satisfactory compliance with the order during the 24 months immediately preceding the filing thereof and upon such changes in conditions and circumstances as to demonstrate, if established, that a continuation of the order in full force and effect is no longer required to assure satisfactory compliance with the regulations under the order. Such changes in conditions and circumstances as are relied upon must be expressly set forth together with the reasons why petitioner believes relief is justified and the precise nature of the relief sought. The petition may be supported by affidavits as to matters of fact.

(c) If, after such investigation as the Assistant Secretary deems appropriate, in his judgment sufficient cause has been shown to justify the relief requested, he will enter an order granting relief. If in his judgment, sufficient cause has not been shown he shall so notify petitioner, who may then in writing request a hearing. Upon receipt of such request the Assistant Secretary will refer the petition with its supporting documents and the request to the Chief Hearing Examiner who will assign the matter for a hearing to be held on not less than 10 days notice at a time and place to be set by the hearing examin-

er. The Deputy Solicitor of Labor may file a pleading and otherwise appear in opposition to the petition. The hearing will be subject to all of the provisions of §§ 1921.9 through 1921.22.

[31 FR 11144, Aug. 23, 1966]

Subpart E—Miscellaneous

§ 1921.17 Service; copies of documents and pleadings.

(a) *Manner of service.* Service upon any party shall be made by the party filing the pleading or document by delivering a copy or mailing a copy to the last known address. If the person upon whom service is made by mail resides 500 miles or more from the party effecting service, such mailing must be by airmail. When a party is represented by an attorney the service may be upon the attorney.

(b) *Proof of service.* A certificate of the person serving the pleading or other document by personal delivery or by mailing, setting forth the manner of said service shall be proof of the service of the pleading or other document.

(c) *Service upon Department, number of copies of pleading or other documents.* An original and three copies of all pleadings and other documents shall be filed with the Department of Labor, whether to the Assistant Solicitor in charge of trial litigation, the hearing examiner, or the Assistant Secretary, as the case may be.

1921.18 Witnesses and fees.

Witnesses subpoenaed by any party shall be paid the same fees and mileage as are paid for like services in the District Courts of the United States. The witness fees and mileage shall be paid by the party at whose instance the witnesses appear.

1921.19 Depositions.

(a) *When, how, and by whom taken.* For good cause shown, the testimony of any witness may be taken by deposition in any proceeding, when a complaint has been filed, whether at issue or not. Depositions may be taken orally or upon written interrogatories before any person designated by the hearing examiner and having power to administer oaths.

(b) *Application.* Any party desiring to take the deposition of a witness shall make application in writing to the hearing examiner, setting forth the reasons why such deposition should be taken; the time when, the place where, and the name and post office address of the person before whom the deposition is to be taken; the name and address of each witness; and the subject matter concerning which each witness is expected to testify.

(c) *Notice.* Such notice as the hearing examiner shall order shall be given for the taking of a deposition, but this shall not be less than 5 days' written notice when the deposition is to be taken within the United States and not less than 15 days' written notice when the deposition is to be taken elsewhere.

(d) *Taking and receiving in evidence.* Each witness testifying upon deposition shall be sworn, and the adverse party shall have the right to cross-examine. The questions propounded and the answers thereto, together with all objections made, shall be reduced to writing, read to the witness, subscribed by him, and certified by the officer. Thereafter, the officer shall seal the deposition, with two copies thereof, in an envelope and mail the same by registered mail to the hearing examiner. Subject to such objections to the questions and answers as were noted at the time of taking the deposition and would be valid were the witness personally present and testifying, such deposition may be read and offered in evidence by the party taking it as against any party who was present or represented at the taking of the deposition or who had due notice thereof. No part of a deposition shall be admitted in evidence unless there is a showing that the reasons for the taking of the deposition in the first instance exist at the time of hearing.

§ 1921.20 Subpoenas.

All applications for subpoenas ad testificandum and subpoenas duces tecum shall be made in writing to the

hearing examiner. Application for subpoenas duces tecum shall specify as exactly as possible the documents to be produced, showing their general relevancy and reasonable scope.

§ 1921.21 Hearing examiners.

(a) *Who presides.* All hearings shall be presided over by a hearing examiner appointed under section 11 of the Administrative Procedure Act.

(b) *How assigned.* The presiding hearing examiner shall be designated by the Secretary or the Chief Hearing Examiner.

(c) *Powers.* Hearing examiners shall have all powers necessary to the conduct of fair and impartial hearings, including the following:

(1) To administer oaths and affirmations;

(2) To issue subpoenas upon proper applications as provided in § 1921.20;

(3) To rule upon offers of proof and receive relevant evidence;

(4) To take or cause to be taken depositions and to determine their scope;

(5) To regulate the course of the hearing and the conduct of the parties and their counsel therein;

(6) To hold conferences for the settlement or simplification of the issues by consent of the parties;

(7) To consider and rule upon procedural requests;

(8) To make and file decisions in conformity with this part.

(9) To take any action authorized by the rules in this part or in conformance with the Administrative Procedure Act.

(d) *Consultation.* The hearing examiner shall not consult any person or party on any fact in issue unless upon notice and opportunity for all parties to participate.

(e) *Disqualification of hearing examiners.* (1) When a hearing examiner deems himself disqualified to preside in a particular proceeding, he shall withdraw therefrom by notice on the record directed to the Chief Hearing Examiner.

(2) Whenever any party shall deem the hearing examiner for any reason to be disqualified to preside, or to continue to preside, in a particular proceeding, that party shall file with the Chief Hearing Examiner a motion to disqualify and remove such hearing examiner, such motion to be supported by affidavits setting forth the alleged grounds for disqualification. The Chief Hearing Examiner shall rule upon the motion.

(f) *Contemptuous conduct; failure or refusal of a witness to appear or answer.* In the event of contemptuous conduct, including the failure or refusal of a witness to appear at any hearing or to answer any question which has been ruled to be proper, the hearing examiner may take any action reasonable under 41 CFR 50-203.8(l), promulgated under section 5 of the Act of June 30, 1936 (41 U.S.C. 39).

§ 1921.22 Computation of time.

Sundays and holidays shall be included in computing the time allowed for filing any document or paper under this part. When such time expires on a Sunday or legal holiday, such period shall be extended to include the next following business day.

PART 1922—INVESTIGATIONAL HEARINGS UNDER SECTION 41 OF THE LONGSHOREMEN'S AND HARBOR WORKERS' COMPENSATION ACT

Sec.

1922.1 Definitions.
1922.2 Purpose and scope.
1922.3 Composition of the Board.
1922.4 Responsibilities of the Board; voting.
1922.5 Notice of investigational hearings.
1922.6 Investigational hearings.

AUTHORITY: Sec. 41, Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941); 5 U.S.C. 301.

SOURCE: 27 FR 4168, May 2, 1962, unless otherwise noted. Redesignated at 28 FR 7909, Aug. 2, 1963. Redesignated at 36 FR 25232, Dec. 30, 1971.

§ 1922.1 Definitions.

(a) "Act" means the Longshoremen's and Harbor Workers' Compensation Act.

(b) "Board" means the Board of Investigation.

(c) "Administration" means the Occupational Safety and Health Administration.

(d) "Assistant Secretary" means the Assistant Secretary for Occupational Safety and Health.

(e) "Injury" means accidental injury or death arising out of and in the course of employment, and such occupational disease or infection as arises naturally out of such employment or as naturally or unavoidably results from such accidental injury.

§ 1922.2 Purpose and scope.

Whenever any serious injury results from the employments covered by the Act or whenever it is otherwise appropriate, the Assistant Secretary may appoint a Board of Investigation to hold an investigational hearing during the course of any investigation made under section 41 of the Act. This part prescribes the manner in which any investigational hearings shall be conducted. This part does not apply to any adjudicative proceedings held under section 41(b)(5) of the Act.

§ 1922.3 Composition of the Board.

The Board shall be composed of three members appointed by the Assistant Secretary, one of whom shall be designated as Chairman. All members shall be employees of the United States Department of Labor, and shall have experience in the field of maritime safety.

§ 1922.4 Responsibilities of the Board; voting.

(a) *Determinations and recommendations.* To the extent possible, the Board shall determine the facts, conditions, and circumstances relating to any injury or condition which is the subject of investigation, the probable cause thereof, and shall recommend measures which will provide the best means of preventing future injuries or conditions of similar character. The determinations and recommendations shall be made after hearing such witnesses and receiving such documents and other data relating to the subject or subjects of investigation as may be found available as a result of preliminary investigation.

(b) *Report.* Upon completion of the investigational hearing, the Board shall file a report of its investigation with the Assistant Secretary. The report shall contain the determinations and recommendations required under paragraph (a) of this section. Any member may file a separate report in order to express determinations, recommendations, or reasons for determinations or recommendations which differ from those of a majority of the Board.

(c) *Voting.* Actions of the Board, including the determinations and recommendations required under paragraph (a) of this section, shall require a vote of a majority of its members.

§ 1922.5 Notice of investigational hearings.

The Chairman of the Board shall give reasonable notice of the time and place of any investigational hearing to any person whose conduct is or may be pertinent to the subjects of investigation; to any prospective witnesses; and to any Federal or State agency engaged in similar investigative work.

§ 1922.6 Investigational hearings.

The Chairman shall regulate the course of the hearing; dispose of procedural requests, objections, and related matters; and confine the hearing to the matters for which the Board is responsible. In the performance of these duties, the Chairman may be assisted by counsel assigned by the Solicitor of Labor. In the discretion of the Board, the hearing may be stenographically reported. When the hearing is so reported, copies of the transcript may be obtained upon such terms as the Chairman may provide.

PART 1924—SAFETY STANDARDS APPLICABLE TO WORKSHOPS AND REHABILITATION FACILITIES ASSISTED BY GRANTS

AUTHORITY: Secs. 12, 13, Vocational Rehabilitation Act Amendments of 1965 (29 U.S.C. 41a, 41b).

§ 1924.1 Applicable safety standards.

The safety standards provided in 41 CFR Part 50–204 shall have effect to

the extent applicable to any workshop or rehabilitation facility assisted by a grant pursuant to section 12 or section 13 of the Vocational Rehabilitation Act Amendments of 1965, 79 Stat. 1284, 1286.

[32 FR 3052, Feb. 18, 1967. Redesignated at 32 FR 4170, Mar. 17, 1967. Redesignated at 36 FR 25232, Dec. 30, 1971]

PART 1925—SAFETY AND HEALTH STANDARDS FOR FEDERAL SERVICE CONTRACTS

Sec.
1925.1 Scope and application.
1925.2 Safety and health standards.
1925.3 Records.

AUTHORITY: Service Contracts Act of 1965 (41 U.S.C. 351, et. seq.); 5 U.S.C. 301.

§ 1925.1 Scope and application.

(a) The McNamara-O'Hara Service Contract Act of 1965 (79 Stat. 1034, 41 U.S.C. 351, et seq.) requires that every contract entered into by the United States or the District of Columbia in excess of $2,500 (except as provided in section 7 of the Act), the principal purpose of which is to furnish services in the United States through the use of service employees, must contain, among other provisions, a stipulation that "no part of the services covered by this Act will be performed in buildings or surroundings or under working conditions, provided by or under the control or supervision of the contractor or any subcontractor, which are unsanitary or hazardous or dangerous to the health or safety of service employees engaged to furnish the services." This Part 1925 expresses certain minimum safety and health standards which will be applied in the administration and enforcement of the Act to determine whether services covered by the Act are being, or have been, performed in compliance with its safety and health requirements.

(b)(1) Investigators conducting investigations and all officers of the Department of Labor evaluating, reviewing and analyzing investigations, as well as officers of the Department determining whether there are or have been violations of the safety and health requirements of the Service Contract Act of 1965 or any contract subject thereto and the terms on which there may be a settlement of issues arising from an investigation without resort to administrative or judicial litigation, will consider a failure to comply with the safety and health measures provided in § 1925.2 to result in working conditions which are "unsanitary or hazardous or dangerous to the health or safety of service employees" within the meaning of section 2(a)(3) of the Act and the contract stipulation it requires.

(c) [Reserved]

(d) The standards expressed in this Part 1925 are for application to ordinary employment situations, and do not preclude proof or recognition of the necessity for additional standards in employment situations of extraordinary hazard. Neither do the standards expressed in this Part 1925 purport to cover all of the working conditions which are unsanitary or hazardous or dangerous to the health or safety of service employees. Other working conditions may be found to be unsanitary or hazardous or dangerous to the health or safety of such employees on evidence to that effect.

(e) Compliance with the standards expressed in this Part 1925 will not relieve anyone from any obligation he may have to comply with any stricter standard, such as state or local law or ordinance or collective bargaining agreement.

[32 FR 21036, Dec. 30, 1967, as amended at 36 FR 9866, May 29, 1971. Redesignated at 36 FR 25232, Dec. 30, 1971]

§ 1925.2 Safety and health standards.

Every contractor and subcontractor shall comply with the safety and health standards published in 41 CFR Part 50-204, including any matters incorporated by reference therein.

[36 FR 9866, May 29, 1971. Redesignated at 36 FR 25232, Dec. 30, 1971]

§ 1925.3 Records.

Every contractor or subcontractor shall comply with the recordkeeping requirements of 29 CFR Part 1904.

[40 FR 3593, Jan. 23, 1975]

FINDING AIDS

A list of CFR titles, subtitles, chapters, subchapters and parts and an alphabetical list of agencies publishing in the CFR are included in the CFR Index and Finding Aids volume to the Code of Federal Regulations which is published separately and revised annually.

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(Revised as of June 30, 1989)

The Director of the Federal Register has approved under 5 U.S.C. 552(a) and 1 CFR Part 51 the incorporation by reference of the following publications. This list contains only those incorporations by reference effective as of the revision date of this volume. Incorporations by reference found within a regulation are effective upon the effective date of that regulation. For more information on incorporation by reference, see the preliminary pages of this volume.

29 CFR CHAPTER XVII (PARTS 1911 TO 1925)
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, DEPARTMENT OF LABOR

(Copies of the documents listed in this table are available through the Technical Data Center, U.S. Department of Labor, Washington, D.C., and through Regional Offices of the Occupational Safety and Health Administration. For a complete listing of these addresses, see the end of this table.)

PARTS 1915 AND 1918 (MARITIME STANDARDS)

American Conference of Governmental Industrial Hygienists	
ACGIH Threshold Limit Values (1970)	1915.5
American National Standards Institute	
ANSI A14.1–59 Safety Code for Portable Wood Ladders	1915.5
ANSI A14.2–56 Safety Code for Portable Metal Ladders	1915.5
ANSI B7.1–64 Safety Code for the Use, Care and Protection of Abrasive Wheels.	1915.5
ANSI Z2.1–59 Safety Code for Head, Eye, and Respiratory Protection	1915.5
ANSI Z87.1–68 Practice for Occupational and Education Eye and Face Protection.	1918.101
ANSI Z89.1–69 Safety Requirements for Industrial Head Protection	1918.105
American Society of Mechanical Engineers	
ASME Boiler and Pressure Vessel Code, Sec. VIII, Rules for Construction of Unfired Pressure Vessels, 1963.	1915.5

Addresses

Technical Data Center: Frances Perkins Department of Labor Building, Room N2439, 200 Constitution Ave., N.W., Washington, D.C. 20210.

Boston Regional Office—Region I: Regional Administrator, U.S. Department of Labor—OSHA, 16–18 North St., 1 Dock Square Bldg., 4th Fl., Boston, MA 02109.

New York Regional Office—Region II: Regional Administrator, U.S. Department of Labor—OSHA, 1515 Broadway (1 Astor Plaza), Room 3445, New York, NY 10036.

Philadelphia Regional Office—Region III: Regional Administrator, U.S. Department of Labor—OSHA, Gateway Bldg., Suite 2100, 3535 Market St., Philadelphia, PA 19104.

Atlanta Regional Office—Region IV: Regional Administrator, U.S. Department of Labor—OSHA, 1375 Peachtree St., N.E., Suite 587, Atlanta, GA 30309.

Chicago Regional Office—Region V: Regional Administrator, U.S. Department of Labor—OSHA, 32nd Fl., Room 3263, 230 S. Dearborn St., Chicago, IL 60604.

Dallas Regional Office—Region VI: Regional Administrator, U.S. Department of Labor—OSHA, 555 Griffin Square Bldg., Room 602, Dallas, TX 75202.

29 CFR CHAPTER XVII (PARTS 1911 TO 1925)—Continued

Kansas City Regional Office—Region VII: Regional Administrator, U.S. Department of Labor—OSHA, 911 Walnut St., Rm. 3000, Kansas City, MO 64106.

Denver Regional Office—Region VIII: Regional Administrator, U.S. Department of Labor—OSHA, Federal Bldg., Room 1554, 1961 Stout St., Denver, CO 80294.

San Francisco Regional Office—Region IX: Regional Administrator, U.S. Department of Labor—OSHA, 11349 Federal Bldg., 450 Golden Gate Ave., P.O. Box 36017, San Francisco, CA 94102.

Seattle Regional Office—Region X: Regional Administrator, U.S. Department of Labor—OSHA, Federal Office Bldg., Room 6003, Seattle, WA 98174.

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V Agricultural Research Service, Department of Agriculture (Parts 500—599)

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VII Agricultural Stabilization and Conservation Service (Agricultural Adjustment), Department of Agriculture (Parts 700—799)

VIII Federal Grain Inspection Service, Department of Agriculture (Parts 800—899)

IX Agricultural Marketing Service (Marketing Agreements and Orders; Fruits, Vegetables, Nuts), Department of Agriculture (Parts 900—999)

X Agricultural Marketing Service (Marketing Agreements and Orders; Milk), Department of Agriculture (Parts 1000—1199)

XI Agricultural Marketing Service (Marketing Agreements and Orders; Miscellaneous Commodities), Department of Agriculture (Parts 1200—1299)

XIV Commodity Credit Corporation, Department of Agriculture (Parts 1400—1499)

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